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Report of the Ministry of Forests

Fiscal Year Ended March 31, 1982



**Province of British Columbia
Ministry of Forests**

Honourable T.M. Waterland, Minister

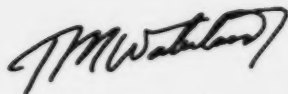
November 30, 1982

The Honourable Henry P. Bell-Irving,
D.S.O., O.B.E., E.D.,
Lieutenant-Governor of British Columbia

May It Please Your Honour:

Herewith I respectfully submit the Annual Report of
the Ministry of Forests for the year ended March 31, 1982.

Yours truly,

A handwritten signature in dark ink, appearing to read 'T.M. Waterland', written in a cursive style.

T.M. Waterland,
Minister

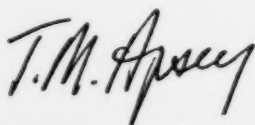
September 30, 1982

The Honourable T.M. Waterland,
Minister of Forests,
Parliament Buildings,
Victoria, B.C.

Sir:

I have the honour to submit the Annual Report of the
Ministry of Forests for the year ended March 31, 1982.

Yours truly,

A handwritten signature in dark ink, appearing to read "T.M. Apsey". The signature is written in a cursive, slightly slanted style.

T.M. Apsey,
Deputy Minister

Contents

I. Directory	5
II. Deputy Minister's Message	7
III. Program Reports	12
Management	12
Finance/Support	13
Harvesting	14
Silviculture	15
Research	17
Forest Protection	18
Fire Suppression	19
Range	20
Recreation	21
IV. Summary Statistical Tables	22
Table 1: Forecast and Actual Expenditure in 1981-82, by Program	22
Table 2: Forecast and Actual Expenditure in 1981-82, by Forest Region	23
Table 3: Composition of Actual Expenditure in 1981-82, by Program	23
Table 4: Composition of Actual Expenditure in 1981-82, by Forest Region	24
Table 5: Forest and Range Revenue in 1981-82, by Forest Region	24
Table 6: Forest Land in British Columbia, by Forest Region	25
V. Detailed Statistical Tables	26
Finance/Support	26
Harvesting	27
Silviculture	33
Forest Protection and Fire Suppression	38
Range	42
Recreation	44
VI. Special Report: Contractor Clause Performance in 1981	46
VII. The Structure of the Ministry	51
Headquarters	51
Forest Regions	54

I. Directory

(March 31, 1982)

Victoria

Minister

HON. T.M. WATERLAND

Executive Committee

T.M. APSEY,

Deputy Minister and Chairman, Executive Committee

W. YOUNG,

Chief Forester and Assistant Deputy Minister, Forestry Division

R.W. ROBBINS,

Assistant Deputy Minister, Operations Division

A.C. MacPHERSON,

Assistant Deputy Minister, Timber, Range and Recreation Division

R.J. CULLEN,

Assistant Deputy Minister, Finance and Administration Division

Executive Director

J.A.K. REID,

Legislation and Policy

Branch Directors

J.R. COX,

Director, Information Services Branch

E. KNIGHT,

Director, Strategic Studies Branch

C.J. HIGHSTED,

Director, Planning Branch

F. HEGYI,

Director, Inventory Branch

R.L. SCHMIDT,

Director, Research Branch

C.M. JOHNSON,

Director, Silviculture Branch

H.G. DOERKSEN,

Director, Protection Branch

W.H. McLACHLAN,

Director, Range Management Branch

J.J. JUHASZ,

Director, Timber Management Branch

H.N. MARSHALL,

Director, Recreation Management Branch

H. WAELTI,

Director, Valuation Branch

C.P. WILLIAMS,

Director, Engineering Branch

L.G. UNDERWOOD,

Director, Personnel Services Branch

R.W. LONG,

Ministry Comptroller, Financial Services Branch

J.G. HILL,

Director, Systems Services Branch

J. SHEPPARD,

Director, Legal and Administrative Services Branch

R.K. NATSUHARA,

Director, Technical Services Branch

Forest Regions and Districts

Cariboo Forest Region

Regional Manager

J.A.D. McDONALD,

Williams Lake

District Managers

R. REEVES,

Chilcotin Forest District, Alexis Creek

J. MENNING,

Horsefly Forest District, Horsefly

R.T. OSTBY,

100 Mile House Forest District, 100 Mile House

O.J. KETTLESON,

Quesnel Forest District, Quesnel

W.S. CARR,

Williams Lake Forest District, Williams Lake

Kamloops Forest Region

Regional Manager

A.B. ROBINSON,

Kamloops

District Managers

M.E. MONTEITH,

Clearwater Forest District, Clearwater

H.W.A. JANNING,

Kamloops Forest District, Kamloops

A.P. PETTY,

Lillooet Forest District, Lillooet

J.E. LeDUC,

Merritt Forest District, Merritt

F. PEARCE,

Penticton Forest District, Penticton

J.H. LITTLE,
Salmon Arm Forest District, Salmon Arm
E.W. HEWITT,
Vernon Forest District, Vernon

Nelson Forest Region

Regional Manager

M.G. ISENER,
Nelson

District Managers

G.B. ALLIN,
Arrow Forest District, Castlegar
W.E. BRASH,
Boundary Forest District, Grand Forks
R.R. TOZER,
Cranbrook Forest District, Cranbrook
D.E. GILL,
Golden Forest District, Golden
J.F. BAILEY,
Invermere Forest District, Invermere
J.P. SEDLACK,
Kootenay Lake Forest District, Nelson
T. HARVIE,
Revelstoke Forest District, Revelstoke

Prince George Forest Region

Regional Manager

J.R. CUTHBERT,
Prince George

District Managers

T.R. GIBBS,
Dawson Creek Forest District, Dawson Creek
A. JOYCE,
Fort Nelson Forest District, Fort Nelson
W.E. HALL,
Fort St. James Forest District, Fort St. James
R.G. MILLER,
Fort St. John Forest District, Fort St. John
C.L. NELSON,
Mackenzie Forest District, Mackenzie
R.M. HAWKINS,
McBride Forest District, McBride
R.G. TRENAMAN,
Prince George East Forest District, Prince George
K.W. MAGEE,
Prince George West Forest District, Prince George
K.E. ARNETT,
Vanderhoof Forest District, Vanderhoof

Prince Rupert Forest Region

Regional Manager

J.A. BICKERT,
Prince Rupert

District Managers

J.H. WENGER,
Bulkley Forest District, Smithers
G.I. BOWIE,
Cassiar Forest District, Dease Lake
G.F. DODD,
Kalam Forest District, Terrace
T.H. PETER,
Kispiox Forest District, Hazelton
A.R. PEMENT,
Lakes Forest District, Burns Lake
R.W. THOMAS,
Mid-Coast Forest District, Bella Coola
D.A. AMONSON,
Morice Forest District, Houston
J.G. WARD,
North Coast Forest District, Prince Rupert
T.A. DYER,
Queen Charlotte Islands Forest District, Queen
Charlotte City

Vancouver Forest Region

Regional Manager

D. GRANT,
Vancouver

District Managers

D.E. deHART,
Campbell River Forest District, Campbell River
J.H. CARRADICE,
Chilliwack Forest District, Chilliwack
T.A. WALKER,
Duncan Forest District, Duncan
D.B. DOERKSEN,
Maple Ridge Forest District, Maple Ridge
R.A. CAMPBELL,
Port Alberni Forest District, Port Alberni
W.S. MILLWARD,
Port McNeill Forest District, Port McNeill
J.B. MOUNTAIN,
Powell River Forest District, Powell River
B.C. CUSTANCE,
Sechelt Forest District, Sechelt
N.P. GILGAN,
Squamish Forest District, Squamish

II. Deputy Minister's Message

This is the second Annual Report of the Ministry of Forests prepared in accordance with the requirements of the Ministry of Forests Act. This report addresses the accomplishments and expenditures of the ministry in the 1981-82 fiscal year relative to the goals and spending estimates set forth in the second *Five-Year Forest and Range Resource Program*. This program was submitted to the Legislative Assembly and published in March, 1981.

The year 1981-82 was a difficult one for the cyclical British Columbia forest industry. Forest company earnings were adversely affected by generally weaker world markets and a six week strike during the summer. The activities of the Ministry of Forests were also affected by the market conditions facing the industry. Forest revenue declined sharply and that part of the total ministry program carried out by the forest industry through credits against stumpage was curtailed as the demand for Crown timber slackened.

The most important market for British Columbia forest products is the United States and changes in that market have a pronounced effect on the province. In October, 1979, the United States monetary authority, the Federal Reserve Board, instituted a restrictive monetary policy in an effort to curb inflation. The record high real interest rates resulting from this policy have led to a deep and prolonged recession in the United States residential construction industry, the major consumer of British Columbia lumber.

In 1981, United States housing starts declined for the third consecutive year to 1.1 million units, the second worst housing year in the post World War II era. The market has continued at a low level of activity through the first half of 1982. Concomitant with the decline in United States lumber demand, North American lumber prices fell by approximately 50% from the peak established in 1979.

While the current trough in the United States housing market is longer than usual, United States housing starts have historically exhibited considerable cyclical variation. A graphic portrayal of the cyclical instability of United States housing starts during the period 1970 through 1981 is presented in Figure 1.

The effect of persistently high interest rates on the United States economy eventually spilled over to affect the economies of other major western industrialized countries which also consume British Columbia forest products. This general economic slowdown caused the demand for British Columbia newsprint and market pulp to weaken in the beginning of 1982. For the major integrated British Columbia forest product companies, the weak lumber market is no longer being partially offset by a stronger pulp and paper market.

Despite the deteriorating market conditions and high financing costs experienced by the provincial forest industry in 1981-82, work continued or was completed on a number of major investment projects initiated before the onset of the current downturn. For example, the installation of a new newsprint machine by Crown Zellerbach Canada Limited at Elk Falls was completed during 1981-82, as was the construction of a new pulp mill by Quesnel River Pulp Limited at Quesnel.

The year 1981-82 was also memorable for the change in ownership of Canada's largest forest company. In April, 1981, Noranda Mines Limited purchased approximately 49% of MacMillan Bloedel Limited. To comply with the conditions placed upon the acquisition by the Government, Noranda subsequently sold its interest in British Columbia Forest Products Limited to Alberta Energy Company Ltd.

The 1981 *Annual Report of the Ombudsman*, by Ombudsman K.A. Friedmann, reported that the number of complaints about the ministry's operations were "not high given the large number of people whose lives are in significant ways touched by the Ministry of Forests." Most complaints involved the relatively new programs for public involvement and small business enterprises. Fewer problems can be expected as these programs become better established. The Ombudsman's recommendation that individuals be notified of their appeal rights under the Forest Act was accepted and acted on during the year.

A broad overview of ministry expenditures, revenue and accomplishments during 1981-82 follows. Further details of ministry activities are provided in the individual program reports.

In 1981-82, expenditure by the Ministry of

Forests totalled \$297.1 million. This amount was funded from the following three sources:

Ministry of Forests budget	\$193.4 million
Forest and Range Resource Fund	\$ 38.6 million
Credits against stumpage revenue	\$ 65.0 million
<u>TOTAL (Rounded)</u>	<u>\$297.1 million</u>

All expenditure tables contained in this report include Ministry of Forests expenditures made from all three sources.

Forecast expenditure for the ministry in the second *Five-Year Forest and Range Resource Program* was \$300.4 million. Actual expenditure fell short of forecast expenditure by 1.1%. During the year, reductions amounting to \$16.4 million were made for restraint and to achieve efficiencies, resulting in a revised forecast expenditure of \$284.0 million. All comparisons of actual and forecast expenditure in this report are made in terms of the forecast expenditure of \$300.4 million published in the second five-year program.

The overall comparison of actual and forecast expenditure for 1981-82 is potentially misleading due to the low estimate included for the Fire Suppression Program in the second five-year program. Section 124 of the Forest Act provides an open-ended funding mechanism for fire suppression in British Columbia. Commencing with the third five-year program, which was submitted to the Legislative Assembly in March, 1982, the provision for fire suppression was adjusted upwards to approximate the expenditure expected in a normal fire season. Excluding the Fire Suppression Program, actual Ministry of Forests expenditure fell short of forecast expenditure by 11.7% in 1981-82.

Fire Suppression Program expenditure of \$39.2 million was significantly above the estimate of \$8.4 million due to a severe wildfire situation in the northern areas of the province. This more than offset the spending shortfall of \$21.3 million under the Harvesting Program due primarily to the curtailment of road and bridge construction, which reflected the decline in the demand for Crown timber as forest product markets softened during the year.

By forest region, actual expenditures approximately matched those forecast for Cariboo and Kamloops. Spending in Nelson and Vancouver was less than forecast while in Prince George, Prince

Rupert and Victoria, actual expenditures exceeded the estimates in the second five-year program. A comparison of actual and forecast expenditure by program and forest region is shown in **Tables 1 and 2**.

The composition of actual Ministry of Forests expenditure is detailed in **Tables 3 and 4**. Approximately 41% of ministry expenditure was made through the private sector in the form of contract work and credits against stumpage under Section 88 of the Forest Act. The private sector was particularly important in the Harvesting, Silviculture and Fire Suppression Programs where much of the work was carried out by licensees and/or private contractors.

Forest revenue in 1981-82 amounted to \$107.0 million, a decline of \$253.8 million from the previous year. Stumpage, after the deduction of Section 88 credits (\$65.0 million), totalled \$69.9 million and accounted for 65% of forest revenue. **Table 5** gives a detailed breakdown of forest revenue by forest region and revenue category.

The cyclical behaviour of stumpage, the major component of forest revenue, is shown in **Figure 2**. A comparison of **Figures 1 and 2** indicates that the cycle in stumpage generally follows that in the United States housing market with a slight lag.

Range revenue in 1981-82 dropped slightly from the previous year to \$1.3 million. The Cariboo and Kamloops Range Districts again accounted for approximately three quarters of this total.

Ministry expenditure under the Harvesting Program in 1981-82 totalled \$80.4 million. The decline in expenditure relative to 1980-81 was due to a reduction in Section 88 expenditures and the removal of technical services from the Harvesting Program. The technical services activity is now included in the Finance/Support Program which more accurately reflects its support role for the entire ministry. Approximately 147 900 hectares (ha) of land was logged to produce 62.6 million cubic metres (m³) of wood.

Under the Silviculture Program, ministry expenditure totalled \$76.0 million. An important goal for 1981-82 was to plant 97 million trees on 78 800 ha of Crown land. This goal was not realized as 78 million trees were planted on 70 200 ha. Improvements in performance will be forthcoming in the near future. Further details concerning the Silviculture and Harvesting Programs, and other programs, are contained in the program reports which follow.

A new feature introduced with this annual report is the special report section. This year's special report analyzes "Contractor Clause Performance in 1981" (see Section VI). In subsequent years, other topics of special interest will be discussed in this section of the annual report.

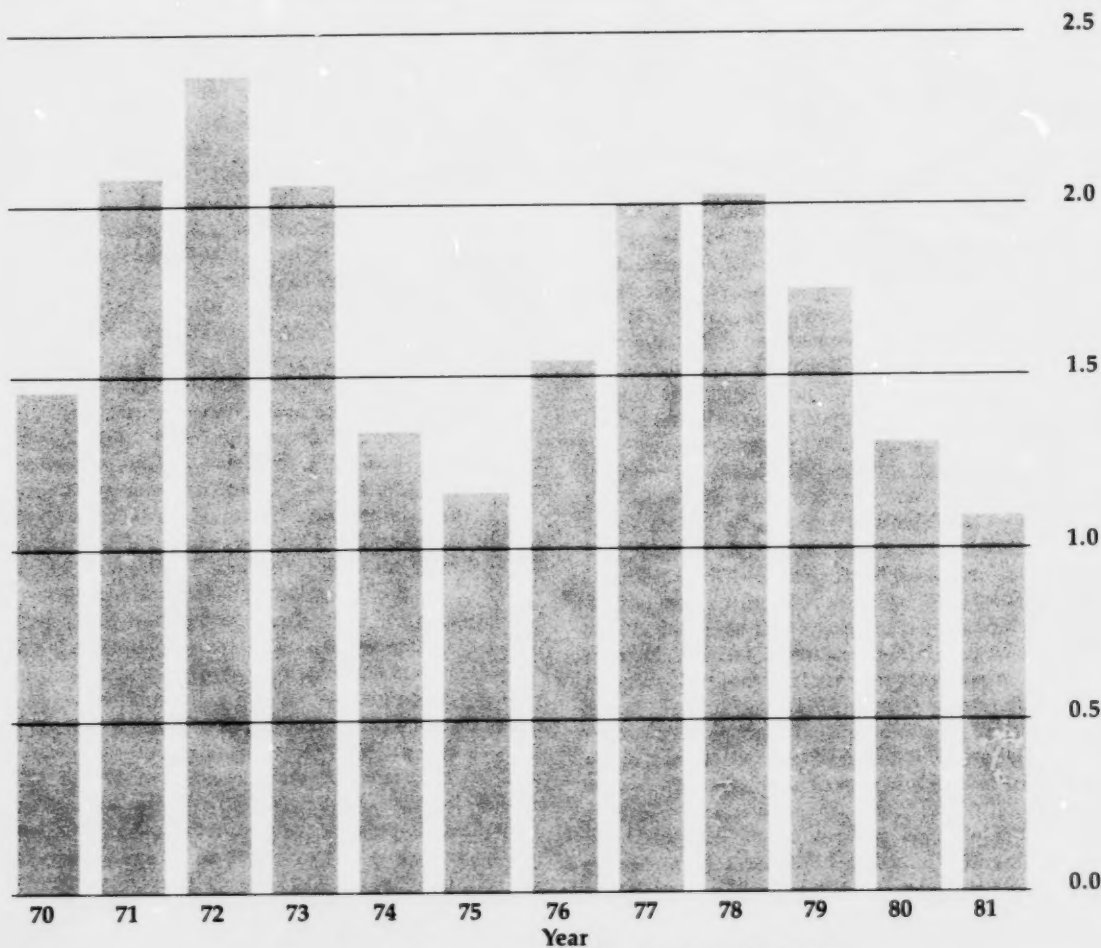
Internally, the ministry completed its reorganization during 1981-82 in order to implement the provisions of the Forest Act. The filling of vacant positions continued, improving staffing levels significantly. Establishment of the boundaries for the 33 Timber Supply Areas (TSAs) was completed and Allowable Annual Cuts (AACs) for another 19 of the TSAs were determined by the chief forester, leaving 2 TSAs for which AACs have yet to be

determined. Maps for the forest districts and TSAs are included in this report for reference.

Despite the current downturn in world markets, I am confident that the demand for products derived from the forest and range resources of British Columbia will recover. The Ministry of Forests will continue to manage, protect and conserve these resources to ensure that the province will be able to take advantage of the opportunities which develop in the future.

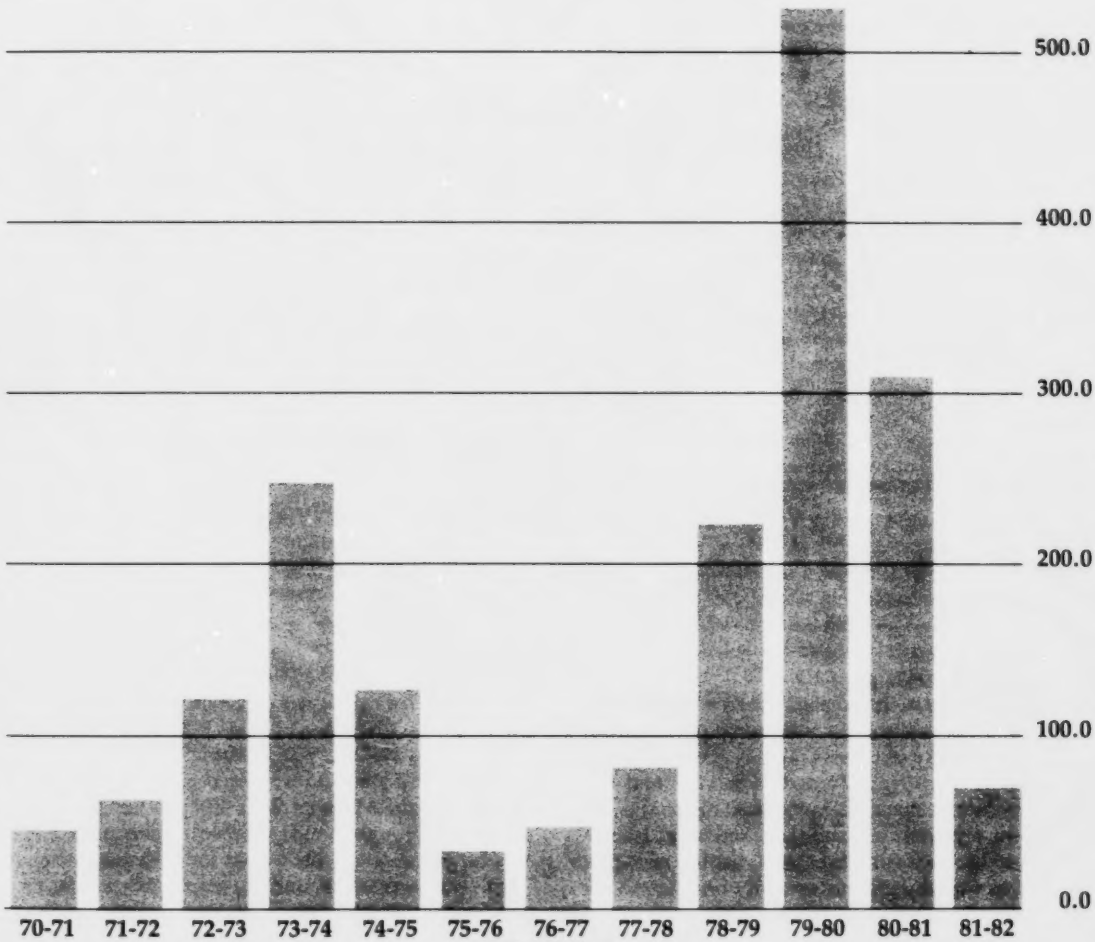
T.M. Apsey,
Deputy Minister

Figure 1: U.S. Housing Starts (Millions of Units)



Source: National Association of Home Builders

Figure 2: British Columbia Stumpage Revenue (Millions of dollars)



Source: Ministry of Forests

III. Program Reports

Management Program

The Management Program provides executive direction, control and information services for the Ministry of Forests. This is achieved through the executive, Information Services and Strategic Studies Branches in Victoria; regional managers, regional staff managers and information officers in the regional offices; and district managers, operations superintendents and support services supervisors in the district offices.

In 1981-82, expenditure under the Management Program was \$11.1 million. As shown in **Table 1**, actual expenditure exceeded the amount forecast in the second five-year program by approximately \$1.3 million. This difference was largely attributable to

the staffing of management positions at the district level during 1981-82.

During the year, considerable effort under the Management Program was devoted to the development of the Ministry of Forests' Management System. Through the Management System, goals are set for the ministry, the means for attaining those goals are established, and the results are monitored and assessed. With the implementation of this system and the filling of management positions in the forest districts, the ministry is well prepared to deliver its programs in an efficient, business-like manner.

Finance/Support Program

The objective of the Finance and Support Program is to provide the whole ministry with an efficient financial and administrative support infrastructure. This includes computerized management information systems, personnel services, productive and safe work environments, and various para-legal and technical equipment services.

Forecast expenditure for 1981-82 was \$54.8 million; actual expenditure was \$51.2 million. More than half (55%) of the expenditure was for material, supplies and expenses, in contrast with the other programs, in which this category accounted for less than 25% of expenditure.

During 1981-82, the majority of work was completed on a *Five-Year Business Plan (1982-1987)* for the program. This plan sets goals for meeting the ministry's needs more efficiently, and emphasizes the links between the ministry's objectives, human and financial resources, and outputs. Numerous challenges in financial management are addressed by the plan.

Auditor General E. Morrison submitted recommendations during 1981-82 from a Financial Management and Control Audit begun after the *Five-Year Business Plan (1982-1987)* was initiated. The recommendations, later published in the *Report of the Auditor General for the Year Ended 31 March 1981*, supported the proposed actions set out by the ministry in the plan. The Auditor General's Report also acknowledged that, following the proclamation of the new forest legislation in 1979 which led to decentralization of the ministry, important improve-

ments had already been made in financial control.

Reorganization of the ministry was completed and many vacant positions were filled during the year (see **Tables A-1 and A-2**). A personnel data base was set up and the first retirement forecast was produced. Active promotion of safety resulted in a 31% decrease in days lost due to accidents. This was the greatest improvement among all the province's ministries and earned the "Premier's Award for Safety Achievement".

Ministry communications were aided with the installation during 1981-82 of a computer network linking forest region offices with headquarters in Victoria. Each regional office also had word processing facilities installed. New policies were developed and implemented covering acquisition and use of microcomputers, business practices with the B.C. Systems Corporation, data security and word processing.

Several important improvements in technical equipment were made in 1981-82. Innovative helicopter pads which reduce accident hazard at mountain top operations were designed and installed at three sites. The radio repeater system was made less costly and more reliable through the design and installation on many sites of aluminum buildings and the replacement of battery power with solar power at 30 repeater sites.

A new housing policy for ministry field staff was introduced in 1981-82. Using a phased program of rent increases, it is to encourage employees to provide their own housing except in isolated locations.

Harvesting Program

The objective of the Harvesting Program is to make timber available to the forest industry in a manner which reflects provincial forest resource use objectives and ensures that the financial interest of the Crown are realized. The program includes timber management, valuation, scaling, engineering and road construction, planning and those parts of inventory and research which relate to the harvesting of timber.

The structure of the Harvesting Program was changed in the second *Five-Year Forest and Range Resource Program*. Technical services, formerly part of the Harvesting Program, is now included in the Finance/Support Program. Planning and parts of inventory and research are now included in the Harvesting Program. The composition of expenditure under the revised Harvesting Program is shown in **Table B-1**.

Expenditure on the Harvesting Program in 1981-82 was \$80.4 million. Approximately 50% of the total was accounted for by engineering and roads. Most of the road construction is performed by the private sector which is reimbursed through credits against stumpage. In 1981-82, this part of the Harvesting Program was severely curtailed due to weak forest product markets. Section 88 road credits approved declined by \$22.0 million from the previous year to \$29.0 million.

Expenditure for scaling amounted to \$10.8 million in 1981-82. Much of the total is recoverable through the scaling fees paid by the forest industry. Scaling fees and other sources of forest revenue by forest region are shown in **Table B-2**.

Expenditures under the remaining three categories of the Harvesting Program, valuation, timber management, and planning, inventory and research, together totalled \$30.4 million. The composite category, planning, inventory and research, was dominated by inventory which accounted for \$9.2 million.

Forest revenue from the Harvesting Program fell to \$107.0 million in 1981-82 from \$360.8 million in the previous fiscal year. The most volatile component of forest revenue, stumpage, declined by \$239.9 million to \$69.9 million. Minimum stumpage rates were prevalent on both the coast and in the interior throughout 1981-82. Average stumpage

prices by species and forest region for 1981-82 are shown in **Table B-3**.

In 1981-82, approximately 147 900 ha were logged to produce 62.6 million m³ of wood. Details of the timber harvest and the area harvested are shown in **Tables B-5** and **B-6**. The decline in both timber harvest and area logged from 1980-81 reflected generally weaker forest product markets.

The decrease in forest revenue to the Crown was paralleled by a marked decline in the financial performance of the forest industry last year. The lumber market remained depressed throughout the year while the pulp and paper market softened by the beginning of 1982. Margins were squeezed as forest product prices tended to remain constant or decline while operating costs and financing charges increased significantly.

Generally weaker markets and an industry-wide strike during the summer both contributed to a 14% decline in the provincial timber harvest under the Harvesting Program in 1981-82. Employment in and the value of shipments by the British Columbia forest industry also decreased in 1981. The forest industry provided employment for approximately 83,000 workers in 1981, the lowest total since 1975. The estimated value of shipments by the forest industry fell by 7% to approximately \$7.0 billion in 1981 as sales by both the wood and pulp and paper segments declined. This represented approximately 42% of the value of shipments by all British Columbia manufacturing industries.

The volume of wood committed under the Harvesting Program remained virtually unchanged at 67.2 million m³ in 1981-82. The number of licences administered and the volume of wood committed under the program are shown in **Tables B-8** and **B-9** respectively.

In accordance with the provisions of the Forest Act, the Ministry of Forests is presently changing both the areas for which AACs are specified and the forms of tenure which convey rights to Crown timber. Boundaries for the 33 TSAs have been established and the chief forester specified AACs for 19 of the TSAs in 1981-82, leaving 2 TSAs for which AACs have yet to be determined. The old tenures and commitments shown in **Tables B-8** and **B-9** are being converted to new licences consistent

with the revised AACs specified on a TSA basis. The apportionment procedure, which commenced in 1981-82, is scheduled to be completed in 1982-83.

In the planning area, the year 1981-82 was marked by the publication of the *Public Involvement Handbook*. The ministry is committed to public involvement in the management of the forest resource, and the handbook is designed to assist forest managers in maintaining close contact with the public as they plan for the multiple resource development of the province's forest land.

Activities under the Small Business Enterprise Program component of the Harvesting Program are detailed in **Tables B-4 and B-7**. The Small Business Enterprise Program is designed to promote competition in the forest industry by ensuring that room remains for the dynamic, innovative, small operator. This program expanded significantly in 1981-82 as the volume of timber sold increased by 41% to 2.8 million m³. The commitment for the Small Business Enterprise Program as at March 31, 1982, totalled 3.3 million m³.

Silviculture Program

The objectives of the Silviculture Program are to restock denuded land and to improve the value and productivity of forest stands through silvicultural treatments. Denuded land is restocked through natural seeding and planting where necessary. Site preparation is frequently used to promote natural restocking and to facilitate planting. Brushing and weeding is carried out on some plantations to ensure unimpeded growth of seedlings. Spacing, fertilization and conifer release are among the treatments used on forest stands to improve their value and productivity.

Forecast expenditure for 1981-82 was \$84.5 million; actual expenditure was \$76.0 million (see **Table C-1**). Actual expenditure was less than the forecast due primarily to less planting in basic silviculture than was planned.

Nevertheless, a record 87.0 million seedlings were planted in B.C. during 1981-82. Of these, 8.7 million seedlings were planted on 9 014 ha of private land, and 78.3 million seedlings were planted on 70 179 ha of Crown land. About 85% of the seedlings planted on Crown land were on land denuded recently (basic silviculture); the remaining 15% was backlog planting (intensive silviculture).

Under the terms of the British Columbia-Canada Subsidiary Agreement On Intensive Forest

Management, the federal government contributed \$3.5 million toward enhancement of the forest resource base of the province through the implementation of intensive forest management.

The Silviculture Program consists of four components described below.

Basic Silviculture

For Crown land, the goals and accomplishments in basic silviculture for 1981-82 were:

Goals	Accomplishments	
	(hectares)	
Surveys ¹	256 300	334 584
Site Preparation	52 000	55 571
Planting	70 600	60 129
Brushing and Weeding	9 000	3 260

¹Includes surveys of basic and backlog plantations.

During 1981-82, the ministry and licensees surveyed a total of 334 584 ha of Crown-land. Some 68% (227 773 ha) of the area surveyed was found to

have sufficient commercially valuable trees to be classified as satisfactorily restocked. A small area, about 5% (17 592 ha), was found to be non-productive. The remaining 27% (89 219 ha) of the area surveyed will be planted, site prepared for natural restocking or left for natural restocking, depending on the results of the survey.

Over 70% (236 115 ha) of the total area surveyed had been denuded and left to restock naturally, with or without site preparation (see **Table C-2**). Almost half of this area was from a backlog of coastal areas denuded more than three years ago and interior areas denuded more than five years ago. Of this area surveyed, 61% (143 642 ha) was satisfactorily restocked.

Almost 30% (98 469 ha) of the total area surveyed had been planted following denudation. Over 85% (84 131 ha) of the area surveyed was satisfactorily restocked (see **Table C-3**).

Recently denuded areas are inspected to determine if site preparation is necessary to obtain natural restocking or to prepare land for planting. Site preparation to promote natural restocking decreased in 1981-82 to 18 653 ha. An additional 12 832 ha were assessed to be in a condition that did not require any treatment to ensure natural restocking (see **Table C-4**). Site preparation for planting also decreased in 1981-82 to 36 918 ha actually treated while 1 775 ha were deemed not to require any treatment (see **Table C-5**). The reduction in site preparation was due in part to wet weather in the fall of 1981, which resulted in poor burning conditions.

Planting on Crown land fell short of the goal for 1981-82 with only 66.6 million trees planted on 60 129 ha (see **Table C-6**). The planting goal was not achieved due to a number of factors. Nursery sowings in previous years were not sufficient to meet the 1981-82 goals. This was especially true for the Vancouver Forest Region where planting stock was reduced further by the accidental loss of 2 million Douglas-fir seedlings caused by cultural practises in weed control. Also, a significant amount of unscheduled transplanting occurred during the year, particularly of spruce seedlings for the interior of the province. An additional 8.0 million trees were planted for basic silviculture on 8 374 ha of private land.

Brushing and weeding treatments to control undesirable vegetation in young stands increased 11% in 1981-82 to 3 260 ha (see **Table C-7**). Use of this treatment was concentrated in the Vancouver

Forest Region where brush encroachment on very productive sites is a serious problem.

Average costs of basic silviculture treatments are detailed in **Table C-10**.

Intensive Silviculture

For Crown land, the accomplishments in intensive silviculture closely matched the 1981-82 goals:

	Goals	Accomplishments (hectares)
Backlog Planting	8 200	10 050
Spacing ¹	21 300	18 671
Fertilization	15 800	15 746
Site Rehabilitation	3 100	3 082
Conifer Release	2 200	2 246
Commercial Thinning	0	41

¹Includes juvenile and sanitation spacing.

Restocking of a backlog of forest land that has been denuded for several years is one of the ministry's important activities which is funded in part by the federal government. In 1981-82, 11.7 million seedlings were planted on 10 050 ha of backlog Crown land (see **Table C-6**). In addition, 0.7 million seedlings were planted on 640 ha of backlog private land.

A total of 43 621 ha of Crown land was treated in 1981-82 to improve the value and productivity of forest stands (see **Table C-8**). Spacing was the treatment carried out over the largest area (18 671 ha). By removing excess trees which compete for space and nutrients, this treatment concentrates growth on the remaining crop trees.

Average costs of intensive silviculture treatments are detailed in **Table C-10**.

Nursery Operations

In preparation for future planting requirements, the ministry's nurseries sowed for 107.4 million seedlings during 1981-82. Private nurseries sowed for an additional 25.4 million seedlings.

On some sites, larger planting stock is required which can compete successfully with other vegetation. The ministry transplanted 13.5 million seed-

lings in 1981-82 for this purpose. Private nurseries transplanted an additional 5.3 million seedlings.

Seed Operations

A light cone crop occurred in 1981-82 in both natural stands and seed orchards. Cone collections added 486 kg of seed while 2 167 kg of seed were withdrawn, resulting in a final seed inventory of 33 343 kg (see **Table C-9**). The Duncan Seed Centre facility has become inadequate to meet future

program needs, so planning for a new facility was begun during the year.

Seven new seed orchards were established during the year, bringing the total number of orchards at March 31, 1982, to 32, covering 93 ha. Coastal and Interior Tree Improvement Councils, consisting of representatives from forest industry firms and the ministry, were active in advising the chief forester on tree improvement and seed orchards.

Research Program

Ministry research performs a service function to forest and range resource management programs by providing improved knowledge and methods for achieving objectives, based on scientific investigation.

In 1981-82, expenditure under the Research Program amounted to \$8.4 million, which exceeded the amount forecast in the second *Five-Year Forest and Range Resource Program* by approximately \$1.8 million. The \$8.4 million excludes expenditure devoted to research which has been allocated directly to other programs.

Growth and yield specialists were active in processing data obtained from local and international sources in a continuing program to produce managed stand yield tables for principal commercial tree species. The preparation of interim yield tables for coastal Douglas-fir and interior lodgepole pine neared completion, and work commenced on western hemlock, interior spruce and Douglas-fir. Only limited progress was feasible in establishing new growth and yield installations which address recognized deficiencies in the existing data base. In tree physiology research, scientists continued investigating ways of improving the performance of nursery stock destined for planting on difficult sites which are prone to seasonal moisture stress or brush competition. Several integrated resource management research projects were expanded.

These include new studies on the relationship between forestry and wildlife habitat in several parts of the province and on fish-forestry interactions on the Queen Charlotte Islands. A highlight of the ecology and earth sciences program was the publication of the *Taxonomic Classification of Humus Forms in Ecosystems of British Columbia*. Tree improvement and associated research activities continued to expand, largely in response to needs identified by the recently-formed tree improvement cooperatives. The development of revised breeding strategies and priorities was a major initiative in 1981-82, involving ministry geneticists working in collaboration with academic and private sector specialists. Training programs continued in all regions, and over one thousand operations staff members attended a variety of courses on ecosystem classification, fertilization and spacing, site rehabilitation, and various aspects of tree improvement.

The Kalamalka Research Station and Seed Orchard was officially opened by the Honourable Tom Waterland on September 25, 1981. The \$1.2 million facility plus adjacent lands for tree breeding and seed orchards consolidates both the research and operational aspects of the tree improvement program in the southern interior.

The results of experiments and field studies conducted under the Research Program are published each year in the *Forest Research Review*.

Forest Protection Program

The basic objective of the Forest Protection Program is to protect the forest and range resources of the province from damage by wildfire and pests, including insects and diseases. Other important concerns are the protection of life and property, the preservation of other natural resource values and the use of prescribed fires to support resource management objectives. There are five components within the program — fire management; pest management; administration; air operations; and planning, development and research.

Forecast expenditure for 1981-82 was \$25.0 million, which did not include emergency funding for bark beetle control. Actual expenditure was \$21.7 million, including \$5.2 million of the emergency funding (see **Table D-1**).

For wildfire, the annual goal in the *Five-Year Forest and Range Resource Program* is to keep the area burned below 69 000 ha and the wood volume loss below 2.57 million m³. In 1981-82, the actual area burned was 107 000 ha and the wood volume loss was 5.05 million m³. All forest regions met their goals except the Prince George and Prince Rupert Forest Regions. These northern regions experienced severe drought conditions and record lightning activity. The Prince George Forest Region exceeded its all-time record for the number of fires in one fire season. **Tables D-2 through D-4** provide wildfire and damage statistics for each forest region.

For pests, the objective in the resource program is to establish a pest management organization in the ministry and to build an effective program to reduce wood losses caused by bark beetles, defoliators, mistletoes and diseases. A good start has been made in developing the foundations for this newly-staffed organization and in addressing problems of high priority. **Tables D-5 and D-6** indicate estimated damages due to major pests in the province.

Fire Management

Efforts to improve public awareness of the need for fire prevention were increased in all media. Most demands for prescribed burning in silviculture and for hazard reduction were met, while the upward trend in the use of fire in range and wildlife

management continued. In fire detection, 106 lookouts were manned for a total of 6,818 days during the fire season and 7,763 hours were flown in air patrols. The use of airborne infrared scanners to detect spring hangover fires in log landings continued to be cost-effective. In the Cariboo Forest Region alone, out of 1,816 landings scanned, 159 hot landings were discovered and extinguished.

The Series 100 fire suppression training modules were developed and distributed throughout the ministry and to technical forestry schools. In addition, some 200 candidates were trained and certified in basic fire suppression theory and techniques through the Knowledge Network program.

Ministry policy statements were completed on initial attack of wildfires, the fire weather program and smoke management.

Pest Management

Emergency funding in the amount of \$11.4 million was approved in 1981-82 for the purpose of controlling or limiting the spread of bark beetles (notably mountain pine beetle and spruce beetle) during 1981-82 and 1982-83. Seventy-two projects were implemented, including insect detection surveys, road access for control and accelerated timber harvests, and single tree disposal and trap tree programs. Rapattack fire suppression crews helped to dispose of infested trees in inaccessible areas and to construct helispots in remote areas for subsequent beetle control operations. Small scale operational trials using a virus spray were carried out against the Douglas-fir tussock moth in the Similkameen River valley.

A computerized information system was initiated to monitor the use of pesticides within the ministry. As a member of the British Columbia Pesticide Control Committee, the ministry assessed 138 ministry applications and 342 applications from other users, and made recommendations to the Ministry of Environment.

Ministry policy statements were drafted for pest management administration, pest detection and appraisal, pest management strategy and pest management information systems.

Air Operations

A policy was formulated to enhance the safety, efficiency and cost-effectiveness of the ministry's air operations. Following the recommendations of a task force, the ministry entered into a five-year contract for air tanker availability. The contract differs significantly from previous ones, as it provides a broader base for availability, secures lower hourly flying rates and compensates for the cyclical nature of the business. Construction began on the newly located air tanker base at Prince George. The relocation of the Victoria air tanker base was completed and a 135 000 litre reserve fuel tank was installed at the Kamloops base.

Planning, Development and Research

The lightning location and mapping system, first tested during the 1980 fire season, was further refined to improve its cost-effectiveness and expanded to cover the southern half of the province. The field work on fire ecology and fire impacts in northern forests was completed in the Fort Nelson, Cassiar, and northern portion of the Mackenzie TSAs. This provided the basis for guidelines which will improve fire management practices in the north. The fire and weather information system continued to support more complex studies and an ever-increasing volume of management queries.

The fire-related activities of the Forest Protection Program are complementary to the activities in the Fire Suppression Program.

Fire Suppression Program

The ministry's responsibility to minimize damages from wildfires burning in the province's forest and range land is carried out through the Fire Suppression Program. This program is closely linked to and supported by the Forest Protection Program, but is separately managed and funded.

Annual fire control objectives for area and timber burned were met in all forest regions except the Prince George and Prince Rupert Forest Regions. A discussion of the figures is in the section dealing with the Forest Protection Program. **Tables D-2** through **D-4** provide wildfire statistics for each region.

Fire suppression costs for the year amounted to \$39.2 million, a record high for the province (see **Table D-7**).

The 1981 fire season was characterized by drought conditions and exceptionally high lightning activity in northern British Columbia, resulting in an explosive fire situation in the Prince George Forest Region and, to a lesser extent, in the Prince Rupert

Forest Region. The remainder of the province generally experienced normal to below normal weather conditions and fire problems. While the total number of fires in the province was only 16% above the ten-year average, that of the Prince George Forest Region was 230% higher. The number of lightning fires was 470% higher in the Prince George Forest Region and 186% higher in the Prince Rupert Forest Region. The Cariboo and Kamloops Forest Regions also experienced more lightning fires, between 30-44% above average. Lightning fires occur in inaccessible areas where detection capability is poorer and the logistics of rapid attack and control are more difficult. As a result, costs and damages in these areas are significantly higher than for fires caused by man.

At the peak period of the fire season, 2,240 men and 190 tractors and other heavy equipment were on firelines, supported by 100 helicopters and 20 airtankers. The airtanker fleet dropped 8.6 million litres of fire retardant on 528 fires. Specialty crews, trained to rappel from hovering helicopters, took

action on 161 remote fires with notable success.

Northern areas of the province continued to experience difficulty in coping with bad fire seasons, and again accounted for a major portion of the Fire

Suppression Program's expenditures. The complementary activities of the Forest Protection Program continued, with an aim to improving the effectiveness of fire suppression in northern areas.

Range Management Program

The objective of the Range Management Program is to supply forage for domestic and wild ungulates, while conserving the resource base so that future forage production will continue in a manner consistent with multiple use goals for Crown lands. In 1981-82, grazing permits and grazing licences for livestock authorized use of 995,752 animal unit months (AUMs), which again exceeded the goal of 934,000 AUMs in the *Five-Year Forest and Range Resource Program* and surpassed the previous year's authorized use by 59,606 AUMs.

Forecast expenditure for 1981-82 was \$4.5 million; actual expenditure was \$4.5 million (see **Table E-1**). Range management staff also administered the expenditure of \$3.1 million through Coordinated Resource Management Plans (CRMPs). These plans are funded through the Agriculture and Rural Development Subsidiary Agreement (ARDSA), a joint British Columbia-Canada initiative.

Range revenue from permits and licences for Crown range decreased slightly from the previous year to \$1.3 million in 1981-82 (see **Table E-2**). The ground rent, \$0.20 per AUM, was the same as in the previous year, but the fee, which is related to cattle prices of the previous year, decreased to \$1.21 per AUM from \$1.44 per AUM in 1980-81.

Cattle and meat prices in North America are quite volatile, as they are affected by factors in both agricultural and non-agricultural sectors of the domestic and international economies. The current recession and high interest rates have major impacts on the livestock industry. Reduced demand for meat products results in lower prices and, consequently,

lower cashflows and incomes for farms. Debt is expensive to service and new loans become more difficult to obtain as lending agencies consider the increased risks of loaning to operators with reduced asset values in cattle and lower cashflows. A recovery in the livestock industry therefore depends on lower interest rates and general economic recovery.

Grazing permits and grazing licences in 1981-82 are summarized in **Table E-3**. Utilization was 957,867 AUMs; 96% of the authorized use.

Hay cutting permits and hay cutting licences in 1981-82 are summarized in **Table E-4**. Most of the authorized hay cutting permits and hay cutting licences are for wetlands in the interior of the province. Utilization was only 83% of the authorized use, primarily due to high water tables resulting from heavy precipitation, increased hay production from private holdings and other factors.

Range improvements funded by the ministry during the year are shown in **Table E-5**. Range improvements funded under ARDSA are excluded.

Seeding was carried out on 13 686 ha of disturbed forest sites and on 932 ha for grassland rehabilitation. Integrating forage production from seeded clearcuts with range unit planning was largely accomplished in the Kamloops Range District, and was introduced to planning in the Cariboo, Prince George, Nelson and Prince Rupert Range Districts. In biogeoclimatic zones where research has been conducted, seeding clearcuts and grazing cattle has not significantly affected forest production while cost-effectively increasing forage production for domestic and wild ungulates.

Weed control was principally for knapweed (316 ha) and thistle (74 ha). Knapweed control programs have been mainly for containment. Expenditure on fencing, water development and other improvements was primarily for construction of new improvements which enable better utilization of existing forage.

Range inventory work, conducted in conjunction with Inventory Branch, included field sampling of 1 805 534 ha and processing of 97 934 ha for computer retrieval. Research continued on

biological control of knapweed and on range burning. The Research Branch began research projects on range topics.

Under ARDSA, 27 CRMPs were completed in 1981-82, for a total of 43 completed to date. During the year, 56 plans were being implemented, of which 19 were initiated in 1981-82. These plans cover 4.83 million ha and have contributed to the resolution of many problems resulting from multiple use of Crown range.

Recreation Management Program

The objectives of the Recreation Management Program, within the ministry's integrated resource use framework, are to maintain and enhance recreational values (including the aesthetic values of the forest landscape) and to provide a system of sites and trails to facilitate public recreational use of Crown lands.

Expenditure on the Recreation Management Program in 1981-82 was \$4.2 million, about 11% less than forecast (see **Table F-1**). Expenditure for site and trail development and maintenance did not increase significantly. The cost of dealing with vandalism at sites and trails has become a noticeable component of the program. A sharp increase of funding in the management functions clearly showed the ministry's increased emphasis on the protection and maintenance of recreation values (biophysical, cultural and aesthetic).

This year the operations phase of the program incorporated 1,188 recreation sites and 3 250 km of recreation trails (see **Table F-2**). During 1981 a user survey was implemented with the aim of confirming site use information. An estimate of total visits to ministry sites and trails in 1981-82 was 1.7 million,

representing an increase of 20% over the previous year. Both summer and winter activities increased, with cross-country skiing on the ministry's trail system showing the largest gain of any single activity. Provincial residents continued to make up over 80% of the annual user population.

The *Forest Landscape Handbook* was produced in May, 1981. It was very well received in the province and elsewhere in North America and became a guideline and training tool for ministry and forest industry staff. The handbook affirms the ministry commitment to protection and management of the visual and aesthetic aspects of the forest environment.

During the year the ministry also developed and implemented a system for an inventory of recreational resource values. Recreation staffing improved markedly with the appointment of resource officer (recreation) positions in the forest districts. This allowed implementation of the inventory system which will provide an essential basis for the proper consideration of recreation values in the course of integrated resource management.

IV. Summary Statistical Tables

Note: All financial data for 1981-82 contained in Sections IV and V are unaudited.

Table 1: Forecast and Actual Expenditure in 1981-82, by Program

Program	Forecast Expenditure ¹	Revised Forecast Expenditure ²	Actual Expenditure ³
(thousands of dollars)			
Minister	160	157	157
Management	9,858	9,669	11,149
Finance/Support	54,784	51,265	51,174
Harvesting	101,725	91,985	80,438
Silviculture	84,483	82,610	76,049
Research	6,607	6,518	8,433
Forest Protection	25,046	24,584	21,735
Fire Suppression	8,420	8,185	39,224
Range	4,542	4,415	4,478
Recreation	4,731	4,593	4,219
TOTAL	300,356	283,981	297,056

Notes:

¹ Forecast expenditure in the *Five-Year Forest and Range Resource Program*, March 1981.

² Forecast Expenditure less:

- (i). \$7.0 million reduction to achieve efficiencies in public spending, and
- (ii). \$9.375 million reduction for expenditure restraint.

³ Incorporates all expenditures including accruals of \$5.138 million. Funds are from three sources:

- (i). Ministry of Forests budget,
- (ii). Forest and Range Resource Fund, and
- (iii). Expenditures by licensees under Section 88 of the Forest Act.

Table 2: Forecast and Actual Expenditure in 1981-82, by Forest Region

Forest Region	Forecast Expenditure ¹	Revised Forecast Expenditure ²	Actual Expenditure ³
(thousands of dollars)			
Cariboo	25,389	23,090	24,888
Kamloops	28,414	27,049	28,406
Nelson	29,080	26,726	23,714
Prince George	48,015	43,700	53,623
Prince Rupert	35,150	34,672	37,530
Vancouver	56,320	54,185	47,516
Victoria	77,988	74,559	81,379
TOTAL	300,356	283,981	297,056

Notes:

¹ Forecast regional expenditure implicit in the *Five-Year Forest and Range Resource Program*, March 1981.

² Forecast Expenditure less:

- (i). \$7.0 million reduction to achieve efficiencies in public spending, and
- (ii). \$9.375 million reduction for expenditure restraint.

³ Includes all expenditures. Funds are from three sources:

- (i). Ministry of Forests budget,
- (ii). Forest and Range Resource Fund, and
- (iii). Expenditures by licensees under Section 88 of the Forest Act.

Table 3: Composition of Actual Expenditure in 1981-82, by Program

Program	Wages & Salaries		Materials, Supplies & Expenses	Contracts	Section 88	Total
	Permanent Staff	Temporary & Aux. Staff				
(thousands of dollars)						
Minister	116	-	41	-	-	157
Management	8,665	526	1,081	877	-	11,149
Finance/ Support	14,491	7,521	28,018	1,144	-	51,174
Harvesting	26,899	10,145	3,210	10,015	30,169	80,438
Silviculture	8,071	12,729	9,454	13,126	32,669	76,049
Research	2,117	2,850	1,351	1,247	868	8,433
Forest Protection	5,341	7,290	2,565	5,518	1,021	21,735
Fire Suppression	1,124	6,193	8,227	23,680	-	39,224
Range	1,780	967	996	735	-	4,478
Recreation	959	1,664	615	672	309	4,219
TOTAL	69,563	49,885	55,558	57,014	65,036	297,056

Table 4: Composition of Actual Expenditure in 1981-82, by Forest Region

Forest Region	Wages & Salaries		Materials, Supplies & Expenses	Contracts	Section 88	Total
	Permanent Staff	Temporary & Aux. Staff				
(thousands of dollars)						
Cariboo	6,438	5,223	3,068	5,290	4,869	24,888
Kamloops	7,279	6,255	3,423	4,604	6,845	28,406
Nelson	7,219	5,880	(2,167) ¹	8,137	4,645	23,714
Prince George	8,765	8,053	5,738	13,788	17,279	53,623
Prince Rupert	7,451	5,922	4,179	5,981	13,997	37,530
Vancouver	13,481	7,369	5,432	8,349	12,885	47,516
Victoria	18,930	11,183	35,885	10,865	4,516	81,379
TOTAL	69,563	49,885	55,558	57,014	65,036	297,056

Notes:

¹ Credit results from recoveries from B.C. Hydro for the Revelstoke Reservoir Clearing Program amounting to \$5.799 million.

Table 5: Forest and Range Revenue in 1981-82, by Forest Region¹

Forest Region	Forest Revenue ²	Range Revenue	Total Revenue
	(thousands of dollars)		
Cariboo	8,542	541	9,083
Kamloops	7,325	458	7,783
Nelson	4,480	108	4,588
Prince George	13,826	176	14,002
Prince Rupert	16,409	44	16,453
Vancouver	51,097	1	51,098
Victoria	5,276	2	5,278
TOTAL	106,955	1,330	108,285

Notes:

¹ Forest and range revenue in Tables 5, B-2 and E-2 is presented on a cash basis.

² Forest revenue is net of credits against stumpage which equaled \$65.036 million in 1981-82. Gross Total Revenue

totalled \$173.321 million. Credits approved by program and forest region are shown in Tables 3 and 4 under the column heading "Section 88".

Table 6: Forest Land in British Columbia, by Forest Region¹

Forest Region	Mature	Immature	NSR ²	NC Brush ³	Other ⁴	Total
(thousands of hectares)						
Cariboo	3 534.8	2 686.4	155.4	19.0	80.5	6 476.1
Kamloops	2 241.9	1 974.9	130.7	19.7	20.5	4 387.7
Nelson	1 335.7	2 084.9	241.8	21.0	80.3	3 763.7
Prince George	7 840.7	8 235.7	196.7	627.0	396.7	17 296.8
Prince Rupert	8 700.7	2 340.7	344.0	75.1	204.1	11 664.6
Vancouver	2 181.6	1 450.6	88.2	6.0	98.2	3 824.6
TOTAL	25 835.4	18 773.2	1 156.8	767.8	880.3	47 413.5

Notes:

¹ Source: *Forest and Range Resource Analysis Technical Report*, March 1980.

Excludes:

- (i). Crown forest land in old temporary tenures and timber licences which are outside Tree Farm Licences,
- (ii). private forest land outside Tree Farm Licences, and
- (iii). federal forest land.

² Not Satisfactorily Restocked. Stands which have been disturbed over 75 per cent by fire, logging or other causes and have not restocked with sufficient numbers of commercial species.

³ Non-commercial Brush. Areas that have been invaded and covered by brush and non-commercial species.

⁴ Includes miscellaneous cover types such as non-productive timber, non-commercial timber and residual stands following logging.

V. Detailed Statistical Tables

Note: Totals in certain tables are not equal to the sum of their components due to rounding.

**Table A-1: Ministry of Forests Personnel (Permanent Staff) in 1981-82,
by Program**

Program	April 1, 1981			March 31, 1982		
	Positions	Staff	Vacancies	Positions	Staff	Vacancies
Minister	5	5	-	5	5	-
Management	284	259	25	284	264	20
Finance/Support	947	679	268	947	731	216
Harvesting	1,303	1,084	219	1,303	1,154	149
Silviculture	421	259	162	421	296	125
Research	89	75	14	89	80	9
Forest Protection	222	168	54	222	187	35
Range	86	64	22	86	72	14
Recreation	54	37	17	54	44	10
TOTAL	3,411	2,630	781	3,411	2,833	578

Table A-2: Ministry of Forests Personnel (Permanent Staff) in 1981-82, by Forest Region

Forest Region	April 1, 1981			March 31, 1982		
	Positions	Staff	Vacancies	Positions	Staff	Vacancies
Cariboo	303	243	60	303	258	45
Kamloops	348	266	82	348	292	56
Nelson	339	270	69	339	295	44
Prince George	468	320	148	468	377	91
Prince Rupert	409	268	141	409	298	111
Vancouver	661	513	148	661	555	106
Victoria	883	750	133	883	758	125
TOTAL	3,411	2,630	781	3,411	2,833	578

Table B-1: Harvesting Expenditure in 1981-82, by Forest Region

Forest Region	Planning, Inventory & Research	Valuation	Timber Management	Engineering & Roads	Scaling	Total
(thousands of dollars)						
Cariboo	590	653	1,397	3,471	727	6,838
Kamloops	889	758	1,302	4,308	1,162	8,419
Nelson	1,403	308	2,044	3,164	1,109	8,028
Prince George	1,053	766	1,658	11,588	775	15,840
Prince Rupert	1,251	652	1,300	10,284	1,796	15,283
Vancouver	798	900	2,385	2,975	5,190	12,248
Victoria	6,262	2,814	1,238	3,468	-	13,782
TOTAL	12,246	6,851	11,324	39,258	10,759	80,438

Table B-2: Forest Revenue in 1981-82, by Forest Region

Forest Region	Stumpage				Royalty	Scaling	Interest	Other ¹	Total
	Annual Rents	Gross Stumpage	Less Credits	Net Stumpage					
	(thousands of dollars)								
Cariboo	1,144	10,755	4,869	5,886	135	1,208	171	67	8,611
Kamloops	1,430	11,482	6,845	4,637	39	900	206	113	7,325
Nelson	1,516	6,774	4,645	2,129	105	763	76	18	4,607
Prince George	2,901	25,862	17,279	8,583	207	1,348	545	173	13,757
Prince Rupert	2,758	24,346	13,997	10,349	1,542	1,527	198	35	16,409
Vancouver	6,365	50,718	12,885	37,833	4,609	1,586	297	280	50,970
Victoria	867	4,993	4,516	477	-	-	-	3,932	5,276
TOTAL	16,981	134,930	65,036	69,894	6,637	7,332	1,493	4,618	106,955

Notes:

¹ Includes forest revenue from forest protection agreements, recoveries of \$3.488 million from the B.C.-Canada Intensive Forest Management Subsidiary Agreement and other miscellaneous sources.

Table B-3: Average Stumpage Prices Received on Timber Billed from Tree Farm Licences, Timber Sale Harvesting Licences and Timber Sale Licences other than Small Business Sales in 1981-82, by Species and Forest Region

Forest Region	BALSAM		CEDAR		CYPRESS		FIR	
	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)
Cariboo	254	1.10	192	1.62	-	-	985	1.85
Kamloops	680	1.05	520	1.79	*	1.03	1 082	2.04
Nelson	331	1.06	417	1.67	-	-	437	1.52
Prince George	1 254	1.23	32	1.71	-	-	194	3.71
Prince Rupert (C)	441	1.88	648	2.21	68	7.04	64	7.37
Prince Rupert (I)	834	1.19	99	1.67	-	-	*	.86
Vancouver (C)	1 819	3.15	2 223	3.55	319	19.46	1 228	6.24
Vancouver (I)	97	1.97	53	2.45	4	8.67	104	2.59
TOTAL	5 711	1.86	4 184	2.78	391	17.18	4 093	3.38

Forest Region	HEMLOCK		LARCH		LODGEPOLE PINE		SPRUCE	
	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)
Cariboo	22	1.04	*	3.02	2 536	1.48	1 597	1.31
Kamloops	164	1.05	50	1.43	1 804	1.13	1 774	1.19
Nelson	302	.27	161	1.39	1 345	.86	1 004	1.27
Prince George	11	.98	*	2.19	3 083	1.19	6 385	1.46
Prince Rupert (C)	1 366	1.77	-	-	1	1.82	580	10.21
Prince Rupert (I)	739	1.01	-	-	1 527	1.18	1 280	1.27
Vancouver (C)	3 836	2.96	-	-	1	2.46	191	13.11
Vancouver (I)	75	2.22	-	-	20	1.09	35	1.50
TOTAL	6 515	2.30	211	1.40	10 317	1.21	12 845	1.94

Forest Region	WHITE PINE		OTHER SPECIES		ALL SPECIES	
	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)	Volume (000 m ³)	Price (\$/m ³)
Cariboo	*	1.89	5	3.34	5 590	1.48
Kamloops	41	7.21	25	3.32	6 140	1.40
Nelson	120	5.19	26	2.25	4 142	1.24
Prince George	*	.36	2	.75	10 960	1.40
Prince Rupert (C)	*	2.03	3	1.57	3 172	3.64
Prince Rupert (I)	-	-	32	.52	4 510	1.19
Vancouver (C)	25	2.56	45	3.18	9 686	4.29
Vancouver (I)	3	4.51	*	.99	391	2.25
TOTAL	189	5.27	137	2.35	44 592	2.17

Notes:

¹ Volumes exclude firmwood rejects and waste.

² * indicates volume less than 500 m³.

³ Average stumpage prices do not reflect the effect of credits against stumpage.

Table B-4: Stumpage Revenue from the Small Business Enterprise Program in 1981-82, by Forest Region

Forest Region	Volume Billed ¹	Stumpage Appraised ²	Bonus Bid	Stumpage Received	Stumpage Received as a % of Stumpage Appraised
	(000 m ³)	(thousands of dollars)			(%)
Cariboo	289	340	1,337	1,676	493
Kamloops	199	284	815	1,099	386
Nelson	38	51	117	168	329
Prince George	426	694	2,236	2,931	422
Prince Rupert:					
Coast	69	187	157	343	184
Interior	271	301	668	969	322
Vancouver	154	577	1,207	1,784	309
TOTAL	1 446	2,434	6,536	8,970	368

Notes:

¹ Excludes firmwood rejects and waste.

² Appraised stumpage was set at prescribed minimum rates for the period June 1, 1980 through March 31, 1982.

Table B-5: Total Volume of All Products Billed¹ in 1981-82, by Forest Region

Land Status	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Total
	(thousands of cubic metres)						
Crown Land							
Tree Farm Licences ²	94	719	941	429	2 076	5 324	9 582
Timber Sale							
Harvesting Licences	2 853	4 306	2 267	7 118	4 720	4 035	25 300
Timber Sale Licences	3 044	3 649	1 494	4 201	2 376	1 128	15 891
Licences to Cut	150	113	61	495	156	120	1 094
Timber Licences	0	12	3	1	277	2 333	2 626
Old Temporary Tenures ³	0	37	100	0	387	1 818	2 341
Other ⁴	21	203	61	45	27	392	748
Sub-Total	6 160	9 038	4 927	12 289	10 018	15 150	57 582
Private Land	320	504	534	308	282	2 901	4 849
Other ⁵	37	50	3	11	52	40	194
TOTAL	6 518	9 592	5 465	12 608	10 351	18 091	62 625

Notes:

¹ Includes firmwood rejects.

² Includes schedule B lands only.

³ Includes special timber licences, timber leases, pulp licences, pulp leases and timber berths.

⁴ Includes farm woodlot licences, right-of-way, beachcomb, trespass and misc.

⁵ Includes Indian Reserves and Dominion reserves.

Table B-6: Area Harvested¹ in 1981-82, by Forest Region

Forest Region	Clear Cutting	Selective Cutting	Total
	(hectares)		
Cariboo	16 014	7 964	23 978
Kamloops	14 041	5 853	19 894
Nelson	8 826	6 913	15 739
Prince George	47 954	168	48 122
Prince Rupert	17 635	1 496	19 131
Vancouver	20 678	347	21 025
TOTAL	125 148	22 741	147 889

Notes:

¹ Includes all harvesting on Crown lands. Excludes harvesting of private lands except private lands within

Tree Farm Licences, Tree Farms and Farm Woodlot Licences.

Table B-7: Small Business Enterprise Program in 1981-82, by Forest Region

Forest Region	Registrants ¹		Sales		Volume Sold ⁴	Value ⁵
	Cat.1 ²	Cat.2 ³	Cat.1	Cat.2		
	(number of)				(000 m ³)	(\$,000)
Cariboo	423	103	32	10	413	2,135
Kamloops	693	248	33	25	408	2,621
Nelson	576	276	36	23	170	656
Prince George	570	213	18	19	626	4,159
Prince Rupert	673	254	113	46	875	2,725
Vancouver	1,470	256	55	13	271	2,965
TOTAL	4,405	1,350	287	136	2 763	15,260

Notes:

¹ On March 31, 1982.

² Category 1: Registrants who, at the time of application, did not own a timber processing facility.

³ Category 2: Registrants who, at the time of application, owned a timber processing facility.

⁴ Tendered volume.

⁵ Value based upon appraised price at time of sale plus bonus bid, if any.

Table B-8: Number of Tenures at March 31, 1982, by Forest Region

Tenure	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Total
	(number of licences)						
Tree Farm Licences ¹	1	7	5	1	6	17	34
Farm Woodlot Licences	11	2	4	6	4	10	37
Timber Sale Harvesting Licences	38	48	37	60	48	41	272
Timber Sale Licences:							
Quota	44	113	67	42	38	126	430
Third Band	31	65	33	62	4	0	195
SBEP ²	81	102	81	60	260	207	791
Other ³	543	347	381	423	403	565	2,662
TOTAL	749	684	608	654	763	966	4,421

Notes:

¹ Tree Farm Licences 2, 25 and 39 are partly in both Vancouver and Prince Rupert Forest Regions.

² Small Business Enterprise Program.

³ Timber sales for which there is no commitment. These

sales include salvage sales for timber damaged by fire, insects or wind, and cash sales for special forest products such as shake and shingle bolts.

Table B-9: Commitment as at March 31, 1982, by Forest Region

Tenure	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Total
	(thousands of m ³)						
Tree Farm Licences ¹	119	772	1 641	438	4 194	11 891	19 055
Farm Woodlot Licences	2	0	1	2	1	2	8
Timber Sale Harvesting Licences	2 833	3 123	2 392	9 024	6 616	5 268	29 256
Timber Sale Licences:							
Quota	354	138	123	490	240	1 304	2 649
Third Band	2 767	3 043	2 149	4 408	501	0	12 868
SBEP ²	341	352	276	989	1 091	300	3 349
TOTAL	6 416	7 428	6 582	15 351	12 643	18 765	67 185

Notes:

¹ Tree Farm Licences 2, 25 and 39 are partly in both Vancouver and Prince Rupert Forest Regions.

² Small Business Enterprise Program.

Table C-1: Silviculture Expenditure in 1981-82, by Forest Region

Forest Region	Administration	Basic	Intensive	Nursery Operations	Seed Operations	Other ¹	Total
(thousands of dollars)							
Cariboo	499	3,030	1,208	-	-	-	4,737
Kamloops	696	5,190	645	-	19	-	6,550
Nelson	551	2,892	1,114	-	30	-	4,587
Prince George	691	8,999	1,016	-	67	-	10,773
Prince Rupert	819	3,636	1,469	-	38	5	5,967
Vancouver	1,004	7,457	14,138	-	47	-	22,646
Victoria	2,500	22	-	15,844	2,423	-	20,789
TOTAL	6,760	31,226	19,590	15,844	2,624	5	76,049

Notes:

¹ Includes regional inventory services which relate to silviculture.

Table C-2: Surveys of Natural Restocking¹ on Crown Land in 1981-82, by Forest Region

Forest Region	Area Surveyed ²	Area Satisfactorily Stocked	Area Not Satisfactorily Stocked	Area Satisfactorily Stocked
(hectares)			(%)	
Cariboo	68 616	55 539	8 019	81
Kamloops	40 345	22 099	17 374	55
Nelson	31 361	12 201	18 503	39
Prince George	35 685	21 113	14 498	59
Prince Rupert	34 065	15 821	10 443	46
Vancouver	26 043	16 869	8 280	65
TOTAL	236 115	143 642	77 117	61

Notes:

¹ Includes surveys of natural restocking on Crown land within Tree Farm Licences.

² Includes 15 356 hectares of land classified as non-productive.

Table C-3: Surveys of Plantations¹ on Crown Land in 1981-82, by Forest Region

Forest Region	Area Surveyed ²	Area Satisfactorily Stocked	Area Not Satisfactorily Stocked	Area Satisfactorily Stocked
		(hectares)		(%)
Cariboo	10 134	9 665	420	95
Kamloops	11 370	9 847	1 366	87
Nelson	10 072	8 390	1 682	83
Prince George	17 690	16 749	941	95
Prince Rupert	6 643	5 630	915	85
Vancouver	42 560	33 850	6 778	80
TOTAL	98 469	84 131	12 102	85

Notes:

¹ Includes surveys of plantations on Crown land within Tree Farm Licences. Based on surveys made 1 to 3 years after planting.

² Includes 2 236 hectares of land classified as non-productive.

Table C-4: Site Preparation for Natural Restocking on Crown Land in 1981-82, by Forest Region

Treatment	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Total
				(hectares)			
Broadcast burned	0	31	0	58	0	95	184
Bunched (Piled) and burned	1 266	446	737	88	0	0	2 537
Windrowed and burned	0	198	0	249	0	0	447
Spot burned	0	37	0	60	947	0	1 044
Drag scarified	427	343	552	5 813	1 486	0	8 621
Blade scarified	0	756	1 269	125	0	0	2 150
Bunched only	0	350	0	14	0	0	364
Windrowed only	0	88	0	252	0	13	353
Other mechanical ¹	0	10	300	305	0	16	631
Residual falling only (including snags)	0	0	13	0	819	565	1 397
Snag falling only	0	0	29	0	218	0	247
Other ²	0	0	148	530	0	0	678
Sub-Total	1 693	2 259	3 048	7 494	3 470	689	18 653
No Further Treatment ¹	0	2 832	0	10 000	0	0	12 832
TOTAL	1 693	5 091	3 048	17 494	3 470	689	31 485

Notes:

¹ Includes use of a Marden Brush Chopper, Bracke Scarifier, Ripper Blade, etc.

² Includes grass seeding, mistletoe eradication, etc.

³ Land which was surveyed and found not to require treatment to promote natural restocking.

Table C-5: Site Preparation for Planting on Crown Land in 1981-82, by Forest Region

Treatment	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Total
	(hectares)						
Broadcast burned	1 528	1 806	419	8 741	2 596	1 662	16 752
Bunched (Piled) and burned	2 304	574	0	896	259	37	4 070
Windrowed and burned	55	237	0	2 984	3	0	3 279
Spot burned	0	294	24	0	0	74	392
Drag scarified	44	111	157	4	236	0	552
Blade scarified	0	1 066	426	3 550	0	25	5 067
Bunched only	42	942	46	531	0	56	1 617
Windrowed only	0	76	0	522	0	30	628
Other mechanical ¹	170	1 277	87	1 188	953	62	3 737
Chemical only	0	0	9	0	0	0	9
Residual falling only (including snags)	0	0	84	275	0	26	385
Snag falling only	56	0	0	374	0	0	430
Sub-Total	4 199	6 383	1 252	19 065	4 047	1 972	36 918
No Further Treatment ²	0	1 775	0	0	0	0	1 775
TOTAL	4 199	8 158	1 252	19 065	4 047	1 972	38 693

Notes:

¹ Includes use of a Marden Brush Chopper, Bracke Scarifier, Leno Scarifier, Disk Trencher, Dip and Dive Scarifier, etc.

² Land which was surveyed and found not to require treatment prior to planting.

Table C-6: Crown Land Planted in 1981-82, by Forest Region

Forest Region	Area Planted			Trees Planted		
	Basic	Intensive	Total	Basic	Intensive	Total
	(hectares)			(thousands of trees)		
Cariboo	6 403	1 111	7 514	7,784	1,054	8,838
Kamloops	7 573	2 411	9 984	9,187	3,031	12,218
Nelson	4 029	2 074	6 103	5,245	2,573	7,818
Prince George	18 756	2 049	20 805	21,755	2,423	24,178
Prince Rupert	7 384	1 403	8 787	8,809	1,698	10,507
Vancouver	15 984	1 002	16 986	13,861	924	14,785
TOTAL	60 129	10 050	70 179	66,641	11,703	78,344

**Table C-7: Brushing and Weeding on Crown Land in 1981-82,
by Forest Region**

Forest Region	Treatment		Total
	Manual	Chemical	
	(hectares)		
Cariboo	0	0	0
Kamloops	0	0	0
Nelson	6	0	6
Prince George	0	0	0
Prince Rupert	99	198	297
Vancouver	2 115	842	2 957
TOTAL	2 220	1 040	3 260

Table C-8: Crown Land Improved in 1981-82, by Forest Region

Forest Region	Spacing ¹	Fertilization	Site Rehabilitation	Conifer Release	Commercial Thinning	Other
			(hectares)			
Cariboo	2 110	0	0	39	0	
Kamloops	1 269	0	875	0	0	
Nelson	1 157	0	162	0	0	
Prince George	795	0	1 841	0	0	
Prince Rupert	1 323	0	20	91	0	
Vancouver	12 017	15 746	189	2 116	41	3 6
TOTAL	18 671	15 746	3 087	2 246	41	3 6

Notes:

¹ Includes juvenile spacing and sanitation spacing.

² Includes mistletoe control, knockdown of trees over 3 metres high and seed tree control.

Table C-9: Seed Additions, Withdrawals and Inventory in 1981-82, by Species¹

Native Species	Additions			Withdrawals			Final Inventory ⁵
	Initial Inventory ²	Natural Collections	Seed Orchard Collections	Ministry Nurseries ³	Private & Licensee Nurseries ³	Other ⁴	
(kilograms)							
Cedar, Western Red	327.4	2.0	0.0	7.8	3.1	2.5	316.1
Cedar, Yellow	10.2	12.6	0.0	4.8	0.0	0.0	18.1
Douglas-fir	11 045.9	36.7	19.4	401.3	221.5	96.9	10 382.3
Fir, Alpine	801.9	0.0	0.0	5.1	0.0	4.3	792.7
Fir, Amabilis	3 978.1	0.0	0.0	401.1	105.6	33.7	3 437.7
Fir, Grand	381.8	244.0	0.0	20.2	16.0	4.7	584.9
Hemlock, Mountain	98.1	0.0	0.0	1.2	0.3	0.1	96.5
Hemlock, Western	490.0	14.7	0.0	28.0	20.1	1.8	454.8
Larch, Western	262.2	0.0	0.0	5.2	1.3	3.6	252.2
Pine, Lodgepole	3 951.8	123.8	0.0	129.2	67.6	14.5	3 864.2
Pine, Ponderosa	593.6	0.0	0.0	22.8	0.0	1.0	569.9
Spruce, Engelmann	1 683.00	0.0	0.0	35.4	23.8	8.4	1 615.5
Spruce, Sitka	1 137.8	0.0	0.0	9.0	0.1	8.3	1 120.5
Spruce, White	3 267.9	0.0	0.0	97.8	32.6	54.8	3 082.7
Spruce, hybrids ⁶	6 886.8	0.0	0.0	207.8	52.4	5.0	6 621.7
Miscellaneous	106.7	33.2	0.0	6.0	0.6	0.0	133.3
TOTAL	35 023.4	466.9	19.4	1 382.4	545.0	239.6	33 342.6

Notes:

¹ Excludes approximately 166 kilograms of seed from exotic species.

² April 1, 1981.

³ For sowing of seedlings primarily in 1982-83.

⁴ For direct seeding, export, research purposes, etc.

⁵ March 31, 1982.

⁶ Includes natural crosses between Sitka, Englemann, White and Black Spruce.

Table C-10: Average Cost¹ of Silviculture Treatments on Crown Land in 1981-82, by Forest Region

Treatment	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	B.C.
	(dollars per hectare)						
Basic Silviculture							
Site Preparation:							
for Natural Restocking	101	153	115	111	66	46	109
for Planting	138	148	151	171	103	81	150
Planting ²	275	251	325	261	275	222	257
Brushing and Weeding:							
Manual	-	-	771	-	343	222	229
Chemical	-	-	-	-	265	173	191
Intensive Silviculture							
Backlog Planting ²	225	264	344	229	286	203	266
Spacing ³	322	479	162	336	760	946	749
Fertilization	-	-	-	-	-	234	234
Site Rehabilitation	-	187	416	171	1,054	1,270	261
Conifer Release	349	-	-	-	508	331	337
Commercial Thinning	-	-	-	-	-	418	418

Notes:

¹ Weighted by the area treated, where applicable.

³ Includes juvenile spacing and sanitation spacing.

² Excludes the costs of seedlings.

Table D-1: Forest Protection Expenditure in 1981-82, by Forest Region

Forest Region	Fire Management	Pest Management ¹	Forest Protection Services	Air Operations Services	Planning, Development & Research Services	Total
	(thousands of dollars)					
Cariboo	1,213	2,695	387	202	-	4,497
Kamloops	1,371	1,469	1,026	12	-	3,878
Nelson	1,132	1,100	688	103	-	3,023
Prince George	845	762	893	24	-	2,524
Prince Rupert	852	1,352	736	57	-	2,997
Vancouver	1,416	396	688	124	-	2,624
Victoria	506	640	629	50	367	2,192
TOTAL	7,335	8,414	5,047	572	367	21,735

Notes:

¹ Includes special Bark Beetle Emergency Control Program expenditures of \$5.155 million.

Table D-2: Number and Causes of Wildfires¹ in 1981-82, by Forest Region

Cause	Cariboo		Kamloops		Nelson		Prince George		Prince Rupert		Vancouver		Total	
	1981-1982	Ten-Year Average ²	1981-1982	Ten-Year Average ²	1981-1982	Ten-Year Average ²	1981-1982	Ten-Year Average ²	1981-1982	Ten-Year Average ²	1981-1982	Ten-Year Average ²	1981-1982	Ten-Year Average ²
(number of wildfires)														
Lightning	159	110	339	259	292	281	745	131	160	56	64	95	1,759	932
Recreational ³	10	22	41	66	15	36	47	26	26	23	33	49	172	222
Railroads	7	7	28	43	12	34	7	9	0	4	4	18	58	115
Smokers	19	32	32	105	27	51	42	21	18	19	41	75	179	303
Brush Burning ⁴	10	21	10	22	5	17	47	26	13	9	10	14	95	109
Range Burning	5	24	4	7	0	1	2	16	0	1	0	1	11	50
Construction ⁵	2	4	2	6	3	5	10	4	2	4	7	6	26	29
Industrial ⁶	14	25	16	52	16	31	47	29	18	23	21	41	132	201
Incendiary	71	64	21	25	6	7	17	13	8	4	3	5	126	118
Misc. Known Causes	29	49	61	90	20	52	16	21	32	24	20	34	178	270
Unknown Causes	0	2	0	2	0	2	0	1	0	1	1	1	1	9
TOTAL	326	360	554	677	396	517	980	297	277	168	204	339	2,737	2,358

Notes:

¹ Includes all wildfires in British Columbia.

² Based on 1971 through 1980.

³ Campers, hunters, fishermen, etc.

⁴ Excluding railway or right-of-way clearing.

⁵ Road, power, telephone, pipeline, and right-of-way construction.

⁶ Logging, milling and other industries.

Table D-3: Area Burned by Wildfires¹ in 1981-82, by Forest Region

Forest Region	Merchantable Timber		Immature Timber		Other Cover ²		Total	
	1981-1982	Ten-Year Average ³	1981-1982	Ten-Year Average ³	1981-1982	Ten-Year Average ³	1981-1982	Ten-Year Average ³
(hectares)								
Cariboo	929	723	86	892	828	1 346	1 843	2 961
Kamloops	609	1 745	171	1 419	645	1 679	1 425	4 843
Nelson	359	2 139	5	1 958	290	3 556	654	7 653
Prince George	30 906	5 578	11 087	8 791	41 298	23 747	83 291	38 116
Prince Rupert	9 804	2 724	2 862	1 124	6 030	6 337	18 696	10 185
Vancouver	305	448	154	546	225	804	684	1 798
TOTAL	42 912	13 357	14 365	14 730	49 316	37 469	106 593	65 556

Notes:

¹ Includes all wildfires in British Columbia.

² Includes wildfires on Not Satisfactorily Restocked (NSR) areas, Non-commercial Cover (NCC) areas, grazing and

pasture land, non-productive sites and fires less than 4 hectares in area.

³ Based on 1971 through 1980.

Table D-4: Timber Burned by Wildfires¹ in 1981- 82, by Forest Region

Forest Region	Merchantable Timber ²	Immature Timber ³	Total
	(thousands of m ³)		
Cariboo	16.0	6.2	22.2
Kamloops	82.3	8.4	90.7
Nelson	113.1	0.3	113.4
Prince George	3 020.3	571.1	3 591.4
Prince Rupert	942.3	102.3	1 044.6
Vancouver	163.0	25.3	188.3
TOTAL	4 337.0	713.6	5 050.6

Notes:

¹ Includes all wildfires in British Columbia.

² Before salvage. Burned timber is salvaged wherever practical.

³ Estimates. Based on species and generalized age site information. Assumes complete mortality.

Table D-5: Area under Attack by Forest Pests¹ in 1981-82, by Forest Region

Forest Region	Bark Beetles ²	Defoliators	Total ³
	(hectares)		
Cariboo	243 637	0	243 637
Kamloops	21 435	11 735	33 170
Nelson	65 016	0	65 016
Prince George	59 148	0	59 148
Prince Rupert	14 359	22 420	36 779
Vancouver	730	500	1 230
TOTAL	404 325	34 655	438 980

Notes:

¹ Best available estimates. Accuracy varies, depending on the pest. Most estimates are based on a five-year average (1977-1981).

² Area of forests killed by bark beetles is estimated from aerial surveys in 1981.

³ Many more pests are endemic throughout most forests. Estimates of area under attack are meaningless for these pests without detailed measures of the intensity of infestation.

Table D-6: Timber Damaged by Forest Pests¹ in 1981-82, by Forest Region

Forest Region	Bark Beetles	Defoliators	Dwarf Mistletoes	Root Diseases	Total ²
(thousands of m ³)					
Cariboo	3 407	2	680	110	4 199
Kamloops	1 375	117	325	990	2 807
Nelson	3 081	0	273	585	3 939
Prince George	2 999	0	400	240	3 639
Prince Rupert	373	5	1 200	205	1 783
Vancouver	1	604	460	1 310	2 375
TOTAL	11 236	728	3 338	3 440	18 742

Notes:

¹ Best available estimates. Accuracy varies, depending on the pest. Most estimates are based on a five-year average (1977-1981). Only the major forest pests of British Columbia are included. Volumes are estimated before salvage. Attacked timber is salvaged wherever practical.

² Volume lost to decay in forests exceeding 100 years of age is not included. This is estimated at 10 million m³ per year. Nursery and regeneration losses and growth losses due to numerous foliar pests are also not included.

Table D-7: Fire Suppression Expenditure in 1981-82, by Forest Region

Forest Region	Direct Fire Fighting	Suppression Flying	Equipment	Standby and Overtime	Suppression & Safety Training	Site Rehabil- itation	Total
(thousands of dollars)							
Cariboo	969	1,317	48	302	3	-	2,639
Kamloops	1,173	911	47	280	21	-	2,432
Nelson	909	422	58	194	10	-	1,593
Prince George	13,810	2,254	62	714	4	23	16,867
Prince Rupert	4,296	1,408	68	166	15	-	5,953
Vancouver	804	1,027	76	255	-	-	2,162
Victoria	825	5,057	1,482	68	146	-	7,578
TOTAL	22,786	12,396	1,841	1,979	199	23	39,224

Table E-1: Range Management Expenditure¹ in 1981-82, by Range District

Range District	Planning & Administration	Improvements		Inventory & Research	Total
		Repair & Maintenance	Development		
		(thousands of dollars)			
	905	1	332	13	1,251
Cariboo	978	-	200	85	1,263
Kamloops	554	4	64	-	622
Nelson	641	-	116	57	814
Prince George	294	-	-	-	294
Prince Rupert	1	-	-	-	1
Vancouver	213	-	-	20	233
Victoria					
	3,586	5	712	175	4,473
TOTAL					

Notes:

¹ Excludes expenditure funded through the Agriculture and Rural Development Subsidiary Agreement (ARDSA) which was administered by the Ministry of Forests.

Table E-2: Range Revenue in 1981-82, by Range District

Range District	Annual Rents and Fees
	(thousands of dollars)
Cariboo	541
Kamloops	458
Nelson	108
Prince George	176
Prince Rupert	44
Vancouver	1
Victoria	2
TOTAL	1,330

**Table E-3: Grazing Permits and Grazing Licences in 1981-82,
by Range District**

Range Districts	Permits			Licences		
	Number	Authorized	Utilized	Number	Authorized	Utilized
	(AUMs) ¹			(AUMs)		
Cariboo	560	338,893	322,765	42	40,166	40,103
Kamloops	464	283,711	276,799	28	50,077	50,032
Nelson	245	69,813	66,724	28	10,519	10,964
Prince George	409	158,294	150,193	18	4,712	4,552
Prince Rupert	196	37,589	33,819	2	1,191	1,191
Vancouver	11	787	725	0	0	0
TOTAL	1,885	889,087	851,025	118	106,665	106,842

Notes:

¹ Animal Unit Month (AUM) means the amount of forage required for one month by an average animal of the genus Bos, aged 6 months or older.

**Table E-4: Hay Cutting Permits and Hay Cutting Licences in 1981-82,
by Range District**

Range Districts	Permits			Licences		
	Number	Authorized	Utilized	Number	Authorized	Utilized
	(tonnes)			(tonnes)		
Cariboo	61	1 088	928	41	679	624
Kamloops	0	0	0	1	10	10
Nelson	0	0	0	2	35	0
Prince George	8	181	86	1	8	8
Prince Rupert	9	104	81	0	0	0
Vancouver	0	0	0	0	0	0
TOTAL	78	1 373	1 095	45	732	642

Table E-5: Range Improvements¹ in 1981-82, by Range District

Range Districts	Seeding		Fencing ³	Weed Control ⁴	Water Development ⁵	Other ⁶
	Grassland Rehabilitation	Disturbed Forest Land ²				
	(ha)	(ha)	(km)	(ha)	(no.)	(no.)
Cariboo	0	224	122	34	8	53
Kamloops	0	8 436	50	266	71	54
Nelson	0	1 300	15	37	7	30
Prince George	890	3 661	135	280	31	25
Prince Rupert	42	65	29	0	0	0
Vancouver	0	0	0	0	0	0
TOTAL	932	13,686	351	617	117	162

Notes:

¹ Excludes improvements financed through ARDSA.

² Includes seeding of clearcuts.

³ Includes repair, maintenance and construction of fences.

⁴ Control of knapweed, thistle, etc.

⁵ Includes repair, maintenance and development of water sources.

⁶ Includes repair, maintenance and development of trails, corrals, cattleguards, etc.

Table F-1: Recreation Expenditure in 1981-82, by Forest Region

Forest Region	Administration	Protection & Maintenance of Rec. Values ¹	Site and Trail		Total
			Maintenance	Development	
			(thousands of dollars)		
Cariboo	221	-	211	177	609
Kamloops	344	19	434	89	886
Nelson	437	-	344	20	801
Prince George	266	-	145	83	494
Prince Rupert	219	-	88	29	336
Vancouver	516	-	210	70	806
Victoria	297	-	-	-	297
TOTAL	2,300	19	1,432	468	4,219

Notes:

¹ Some of the expenditure on Protection & Maintenance of Recreation Values is included in Administration.

Table F-2: Recreation Site and Trail Use in 1981-82, by Forest Region

Forest Region	Class A & B Sites			Trails	
	Class A ¹	Class B ²	User Visits ³	Length	User Visits ⁴
		(number)		(km)	(number)
Cariboo	155	2	245,000	260	19,000
Kamloops	260	117	326,000	707	37,000
Nelson	219	24	260,000	1 478	34,000
Prince George	158	19	202,000	337	50,000
Prince Rupert	72	14	120,000	42	1,000
Vancouver	134	14	365,000	425	30,000
TOTAL	998	190	1,518,000	3 249	171,000

Notes:

¹ Class A Sites are those with tables, litter facilities and pit toilets.

² Class B Sites are those with litter facilities only.

³ Estimates. Based on field surveys.

⁴ Estimates.

VI. Special Report: Contractor Clause Performance in 1981

Introduction

This Special Report reviews the performance of companies which hold Tree Farm Licences (TFLs) in meeting with their obligations under the Contractor Clause during 1981.

The term "Contractor Clause" has historical origin, referring to a clause included in TFL documents issued since November, 1953. Today, the term is used to refer to the obligations licensees have under the Forest Act, Regulations under that Act, clauses in the licence documents and Ministry of Forests' procedures.

The Contractor Clause is a complex area of forest policy in British Columbia. To assist the reader in understanding this subject, the purpose, historical background and present administration are reviewed and explained before performance during 1981 is examined.

Purpose of the Contractor Clause

The purpose of the Contractor Clause is to ensure opportunities exist for independent contractors to harvest Crown timber allocated under a TFL or Forest Licence (FL). The contractor harvests timber for the company holding the TFL or FL but does not obtain any rights to the timber.

Historical Background

Prior to the award of TFLs, the logging industry in the province included many independent loggers who purchased timber from the Crown and private owners, and who sold logs on the open market and under contracts to mills. As TFLs were awarded, many loggers became concerned that opportunities to harvest the timber were being pre-empted by

cause areas which they had traditionally operated in were being included in the new TFLs.

Addressing these concerns, the first Contractor Clause was included in TFL 14, awarded in 1953. This Clause stated:

"In the process of harvesting the crop from the licence area, the Licensee shall provide the opportunity for contractors other than the Licensee's own employees or shareholders to harvest a minimum of thirty per cent of the allowable cut as set forth in each succeeding management working plan, but where the Minister is satisfied that such contract operation is not feasible, either by reason of lack of operators or for other good and sufficient reason, the Minister may relieve the Licensee in whole or in part from this responsibility".

This Clause made no distinction between the harvest from Crown land or private land within the licence area.

This Clause was included in TFLs 15 through 19 at the time they were awarded in 1954.

The Clause was changed in TFLs 20, 21 and 23, awarded in 1955. In these licences, a minimum of 30 per cent of the allowable cut "... on Crown lands not held under other tenure ..." had to be available for harvest by contractors. This change reflected the view that the Crown should not restrict a licensee's rights on private land or on old temporary tenures granted previously.

TFL 22, also awarded in 1955, included a restrictive amendment to the Contractor Clause. This special Clause required that, in addition to the minimum of 30 per cent of the allowable cut on Crown land not held under other tenure to be made available for harvest by contractors, contractors after January 1, 1960 had to be given the opportunity to bid competitively for the right to harvest 65 per cent of the cut from Crown land not held under other tenure in Blocks IV and V (near Tofino) of the licence area.

The Hon. G. McG. Sloan, Chief Justice of B.C., conducted a Royal Commission relating to the forest resources of the province during 1955, 1956 and through the first half of 1957. Sloan received testimony on the awarding of TFLs, on the concerns of independent loggers that TFLs were creating monopolies and on the need to keep opportunities open for competition. In his *Report of the Commissioner Relating to the Forest Resources of British Columbia, 1956*, Sloan pointed out that restricting the Contractor Clause to Crown land could make it possible

"... for all logging in any year to be done in private timber in a licence with none available to contract loggers". He recommended that the Contractor Clause apply to all timber in the licence area and that the annual volume subject to the Clause should not exceed the percentage of mature Crown timber in the licence area. Sloan also recommended that the TFLs awarded prior to TFL 14 be amended to include a Contractor Clause as opportunities afforded.

As a result of Sloan's recommendations, the Clause was amended to require that a volume of timber equivalent to a minimum of 50 per cent of the allowable cut from Crown land not held under other tenure be harvested by contractors, regardless of the tenure of the land from which it is harvested. This Clause was included in TFLs 24, 25 and 27 through 41, awarded during the years 1958 through 1966.

Besides providing contractors with the opportunity of harvesting timber, the Contractor Clause for TFL 26, awarded in 1958 to the District of Mission, was amended to permit other persons to purchase timber from the licensee.

In 1969, the minister appointed a committee to review the administration of the Contractor Clause. The committee received briefs and conducted interviews throughout the province and prepared *Guidelines for Use in Administering Contractor Clause in Tree Farm Licences*. These Guidelines recognized and defined full and phase contracts, and included a method for determining the contribution of phase contracts to meet the requirements of the Clause.

The Contractor Clause was examined by Commissioner P. H. Pearce in his *Report of the Royal Commission on Forest Resources, 1976*. Pearce questioned the need for the Clause:

"Government intervention aimed at manipulating industrial structures through these means should be used discriminately, otherwise it has a tendency to impede industrial flexibility. Contractor clauses should be designed in the light of local needs to forestall serious disruptions to established operations that are likely to result otherwise, where new licences are issued. I see no justification for this artificial protection where these dangers do not exist, or where contracting is well established under normal arrangements with licensees."

Pearce's conclusions included the recommendation that the government encourage contractor associations and representatives of licensees to address themselves jointly to contractual issues.

Present Administration

The Contractor Clause is administered in accordance with the Ministry of Forests Act, the Forest Act, Contractor Clause Regulation (B.C. Reg. 310/79 and amendment 427/80), the licence document, and Ministry of Forests' procedures.

Requirements of the Forest Act

Under section 12 (h) of the Forest Act, a Forest Licence "... may make provision for timber to be harvested by persons under contract with its holder". This provision is also provided for in the licence document.

Under section 28 (i) of the Forest Act, a Tree Farm Licence shall:

"... require that each year during its term a volume of timber not less than

- (i) 50% of the volume of timber harvested by or for its holder from the tree farm licence area during the year, multiplied by
- (ii) the result obtained by the division of
 - (A) the portion of the allowable annual cut then approved for the tree farm licence that the chief forester determines is attributable to Crown land referred to in paragraph (b) (i) and sections 31 (1) and (2) and 32 (1), by
 - (B) the allowable annual cut then approved for the tree farm licence

shall be harvested by persons under contract with its holder."

Requirements of the Contractor Clause Regulation

The compliance with a Contractor Clause is calculated in accordance with the Contractor Clause Regulation. A licensee complies with a Contractor Clause when:

- (i) the volume required to be harvested by persons under contract is achieved; and
- (ii) at least 70 per cent of the volume required to be harvested by persons under contract is harvested under full contracts.

The harvested volume attributed to the contractors is the sum of:

- (i) Full contracts, defined as contracts which carry out all phases of the logging operation including falling and bucking, yarding, skidding and decking, loading, hauling, unloading, booming, road construction and road maintenance, but which do not include other operations such as

catering, cruising, reforestation, equipment rental and equipment maintenance. Full contracts may consist of a fewer number of phases where, in the opinion of the regional manager, those phases are a substantial portion of the timber harvesting operation. Full contracts must have a term of five years;

and

- (ii) Phase contracts, determined by multiplying the volume handled under the phase by the quotient which results from the division of the estimated appraisal allowance for the phase by the total estimated appraisal allowance for all phases comprising a full contract. In order to qualify as phase contracts, the contracts must have a term of at least two years.

The minister may relieve a licensee from the Contractor Clause in whole or in part. This is subject to section 5 of the Regulation which states that:

"Where the minister is permitted to relieve a licensee, in whole or in part, from the requirements of a contractor clause in a licence, the minister shall satisfy himself that compliance with the contractor clause is not feasible in the circumstances of that case."

Requirements of the Licence Document

A penalty for non-compliance is provided for in the licence document. Unless relief is given by the minister, the licensee is required to pay, as liquidated damages, an amount of money equal to the volume below the volume required to be contracted, multiplied by the average stumpage rate received from the licence during the calendar year.

Ministry of Forests' Procedures

Recognizing the difficulties of administering this complex issue, the minister refers requests for relief to a Contractor Clause Advisory Committee. There are six Committees, one for the coastal area of the province and five for the interior. Each Committee includes representatives of both licensees and contractors.

Performance in 1981

Contractor Clause performance of the licensees of the 34 TFLs in 1981 is shown in Table 1.

The AAC for all TFLs was 19,055 million m³. Of this total, 82% (15,684 million m³) was attributed to Schedule B land which is Crown land not held

under other tenure. The remainder, 18% (3.371 million m³), was attributed to Schedule A land which is private land plus Crown land held under other tenure (timber licences, old temporary tenures).

The total volume harvested on all TFLs in 1981, as recorded by scaled volumes, was 13.457 million m³, 71% of the AAC. In the aggregate, this "under-cut" reflects the poor markets for forest products during the year.

To achieve compliance with the Contractor Clause, each TFL licensee must have contractors log 50%, or more, of the harvest that is attributed to the Schedule B lands within the licence area, with at least 70% of that volume harvested under full contracts. The harvest that is attributed to Schedule B land is the proportion of the AAC that is attributed to the Schedule B lands multiplied by the total volume harvested during the year.

Looking at **Table 1** and using TFL 2 as an example, Crown Zellerbach Canada Ltd. complies fully with the Contractor Clause requirements if:

- (i). the volume required to be harvested by persons under contract is achieved;

(For TFL 2, the harvest during 1981 attributed to Schedule B land was 491 156 m³ and the volume contracted was 320 246 m³. Therefore, 65% of the harvest attributed to Schedule B land was contracted. Since the Contractor Clause requires 50% of the harvest attributed to Schedule B lands (245 578 m³) be available for contractors, more than the total volume required was contracted. Compliance with this requirement is indicated by a "Yes" in the penultimate column of **Table 1**.)

and

- (ii). at least 70% of the volume required to be harvested by persons under contract is harvested under full contracts.

(Continuing with TFL 2, **Table 1** shows also the volume that was contracted through full

contracts. Since the Contractor Clause requires that at least 70% of the volume required to be harvested under contract (170 905 m³) be harvested under full contracts, and 270 329 m³ was harvested under such full contracts, this requirement was complied with. Compliance with this requirement is indicated by a "Yes" in the last column of **Table 1**.)

Therefore, Crown Zellerbach Canada Ltd. complied fully with the Contractor Clause for TFL 2 during 1981.

There are six exceptions to the general application of the Contractor Clause requirements for the year 1981 because six TFLs had not been replaced under the Forest Act. The Contractor Clause in TFLs 1 and 3 did not have a full contract requirement. TFL 7 did not have a Contractor Clause. TFLs 17, 18 and 19 required that only 30% of the "allowable cut" be available for contractors. These different requirements and requirements which were not applicable (N.A.) are noted in **Table 1**. When these licences are replaced under the Forest Act, the same Contractor Clause will apply to all TFLs.

Summary

As shown in **Table 1**, of the 34 TFLs:

- (i). 20 licensees complied fully with the Contractor Clause requirements which were in effect during 1981,
- (ii). 2 licensees (TFLs 21 and 37) did not comply but had received relief from the requirements,
- (iii). 1 licensee (TFL 7) did not have a Contractor Clause, and
- (iv). 11 licensees complied with the total volume required to be contracted but did not comply with the requirement that at least 70% of that volume be contracted under full contracts.

The 11 licensees who did not comply fully with the Contractor Clause requirements in 1981 have received or requested relief.

Table 1: Contractor Clause Performance in 1981: Tree Farm Licences

TFL	Licensor	Allowable Annual Cut		Volume Harvested		Volume Contracted		Compliance	
		Schedule A	Schedule B	Total	Attributed to	Full	Phase	Total	Full
					Schedule A	Contracts	Contracts	Contracts	Contracts
					(cubic metres)				
1	BC Timber Ltd.	3 432	1 298 128	1 291 560	1 917	267 638	141 845	409 483	Yes
2	Crown Zellerbach Canada Ltd.	157 960	651 670	809 630	719 674	270 329	49 917	320 246	Yes
3	Stixan Forest Products Ltd.	0	119 618	119 618	254 776	0	59 436	59 436	Yes
4	Widdowson of Canada Ltd.	209 714	971 097	1 180 811	0	90 208	0	90 208	Yes
5	Western Forest Products Ltd.	110 811	413 050	523 861	168 924	231 695	294 652	526 347	Yes
6	MacMillan Bloedel Ltd.	0	145 000	145 000	57 473	0	67 906	67 906	Yes
7	Pope and Talbot Ltd.	1 245	208 255	209 500	766	0	171 573	171 573	Yes
8	Crown Zellerbach Canada Ltd.	0	219 000	219 000	127 676	0	135 876	135 876	Yes
9	Widdowson of Canada Ltd.	5 980	63 660	69 640	3 688	43 362	0	43 362	Yes
10	Crown Zellerbach Canada Ltd.	310	26 590	26 900	164	0	15 661	15 661	Yes
11	Callaway Lumber Co. Ltd.	1 020	121 480	122 500	723	0	61 295	61 295	Yes
12	Crescentbrook Forest Industries Ltd.	0	72 300	72 300	40 727	0	34 402	34 402	Yes
13	Weyerhaeuser Canada Ltd.	135	134 865	135 000	119	173 379	113 634	113 634	Yes
14	Crown Zellerbach Canada Ltd.	2 545	220 865	223 410	1 477	173 379	0	173 379	Yes
15	B.C. Forest Products Ltd.	0	920 301	920 301	216 140	0	216 140	216 140	Yes
16	Crown Zellerbach Canada Ltd.	69 171	625 835	695 006	692 434	404 707	0	404 707	Yes
17	Clearwater Timber Products Ltd.	308 425	1 210 329	1 518 754	610 552	249 626	104 192	353 818	Yes
18	MacMillan Bloedel Ltd.	675 121	1 845 450	2 520 571	222 337	243 308	93 167	336 475	Yes
19	MacMillan Bloedel Ltd.	220 706	899 880	1 120 586	459 746	300 390	91 568	391 958	Yes
20	B.C. Forest Products Ltd.	386 242	1 020 758	1 406 999	751 010	301 036	0	301 036	Yes
21	MacMillan Bloedel Ltd.	15 940	420 239	436 179	116 203	210 979	70 746	281 745	Yes
22	BC Timber Ltd.	208 621	446 559	655 180	157 325	168 147	98 209	266 347	Yes
23	Western Forest Products Ltd.	5 810	26 470	32 280	5 710	25 308	0	25 308	Yes
24	Western Forest Products Ltd.	10 678	104 999	115 677	10 684	78 980	0	78 980	Yes
25	District of Mission	1 807	435 563	437 370	1 670	317 706	0	317 706	Yes
26	B.C. Forest Products Ltd.	0	30 000	30 000	0	17 617	0	17 617	Yes
27	Northwood Pulp & Timber Ltd.	0	28 480	28 480	29 803	1 000	30 736	30 736	Yes
28	Crown Zellerbach Canada Ltd.	0	89 664	89 664	47 776	47 443	45 427	45 427	Yes
29	Federated Co-operatives Ltd.	22 716	70 730	93 446	11 043	0	0	0	No
30	Weyerhaeuser Canada Ltd.	333 178	762 802	1 095 980	267 258	202 450	122 413	324 863	Yes
31	B.C. Forest Products Ltd.	0	263 380	263 380	0	61 252	27 420	88 672	Yes
32	Canadian Forest Products Ltd.	642 023	2 726 907	3 368 930	144 453	769 533	353 061	1 122 594	Yes
33	Widdowson of Canada Ltd.	0	629 000	629 000	1 471 831	7 749	202 929	210 678	Yes
34	MacMillan Bloedel Ltd.	0	0	0	388 846	0	0	0	No
35	European Pulp & Paper Co. Ltd.	0	0	0	0	0	0	0	No
36	MacMillan Bloedel Ltd.	0	0	0	0	0	0	0	No
37	MacMillan Bloedel Ltd.	0	0	0	0	0	0	0	No
38	MacMillan Bloedel Ltd.	0	0	0	0	0	0	0	No
39	MacMillan Bloedel Ltd.	0	0	0	0	0	0	0	No
40	MacMillan Bloedel Ltd.	0	0	0	0	0	0	0	No
41	MacMillan Bloedel Ltd.	0	0	0	0	0	0	0	No
TOTAL		3 379 790	15 663 546	19 043 336	2 375 965	4 573 167	2 705 460	7 278 627	

1 H1, 7 was replaced on January 1, 1982. The previous agreement did not have

a Contractor Clause and compliance was not applicable

1 H1, 17, 18 and 19 had previous agreements (87% of allowable cut) in effect

for 1981

Notes

1 TFLs 1 and 3 have a Contractor Clause requiring units that

up to

the equivalent of 50% of the AAC from Schedule B land be contracted

VII. The Structure of the Ministry

The ministry established its present structure in order to decentralize administrative authority.

The district, region and headquarters staffs work together to decentralize decision-making. The ministry headquarters staff define policy and provide overall guidance. They also advise the deputy minister and through him, the minister and government on all matters relating to forest and range policy.

Headquarters

As shown in the organization chart on page 53, the ministry headquarters staff is organized into the following four divisions:

- Forestry;
- Timber, Range and Recreation;
- Finance and Administration;
- Operations.

Each of the four divisions is headed by an assistant deputy minister who reports to the deputy minister. These four officials, together with the deputy minister as chairman, constitute the ministry's executive. In addition to the four assistant

deputy ministers, the directors of the Information Services Branch and the Strategic Studies Branch report directly to the deputy minister.

The functions of each division are summarized below.

The *Forestry Division* ensures that all Crown forest and range lands are managed to provide the greatest long-term benefits for British Columbia. The assistant deputy minister of this division is also the chief forester. The Forestry Division maintains a comprehensive inventory of all the province's forest and range resources and assesses these lands in terms of their present and potential uses. The

division comprises the following five branches:

- Planning;
- Inventory;
- Research;
- Silviculture;
- Protection.

The *Timber, Range and Recreation Division* is responsible for formulating comprehensive timber, range and recreation programs and related resource management policies. It also advises the executive on all matters involving engineering and valuation activities. The division is composed of the following five branches:

- Range Management;
- Timber Management;
- Recreation Management;
- Valuation;
- Engineering.

The *Finance and Administration Division* is responsible for advising the executive in all administrative matters and for developing policies and procedures pertaining to the ministry's general

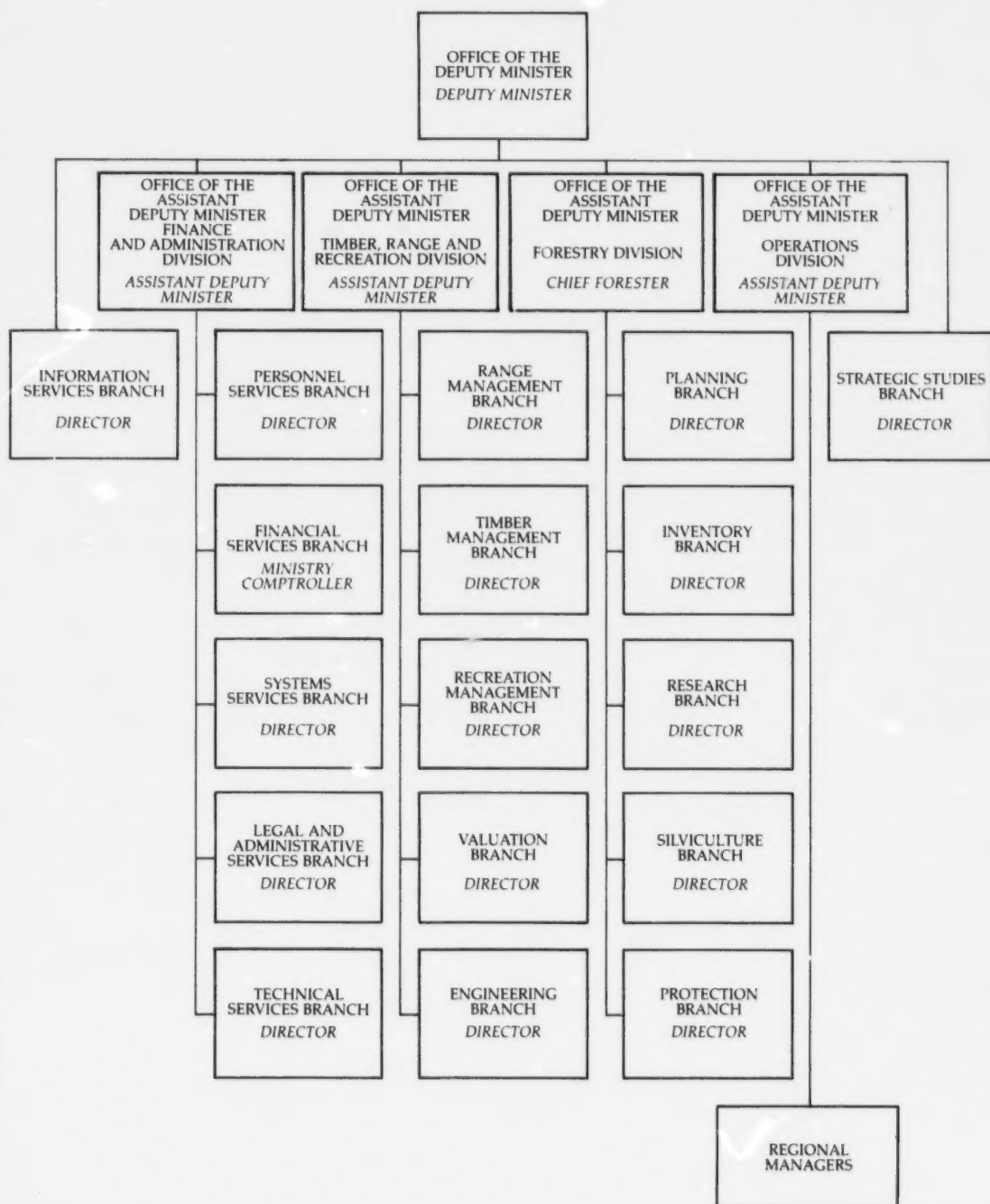
administration. The division is composed of the following five branches:

- Personnel Services;
- Financial Services;
- Systems Services;
- Legal and Administrative Services;
- Technical Services.

The *Operations Division* is responsible for ensuring that the ministry's policies, programs and procedures are promptly and effectively implemented in the province's six forest regions and 46 forest districts. The assistant deputy minister of operations functions as the deputy minister's immediate assistant in administering and coordinating all field operations. The six forest regions are:

- Cariboo;
- Kamloops;
- Nelson;
- Prince George;
- Prince Rupert;
- Vancouver.

Headquarters Organization



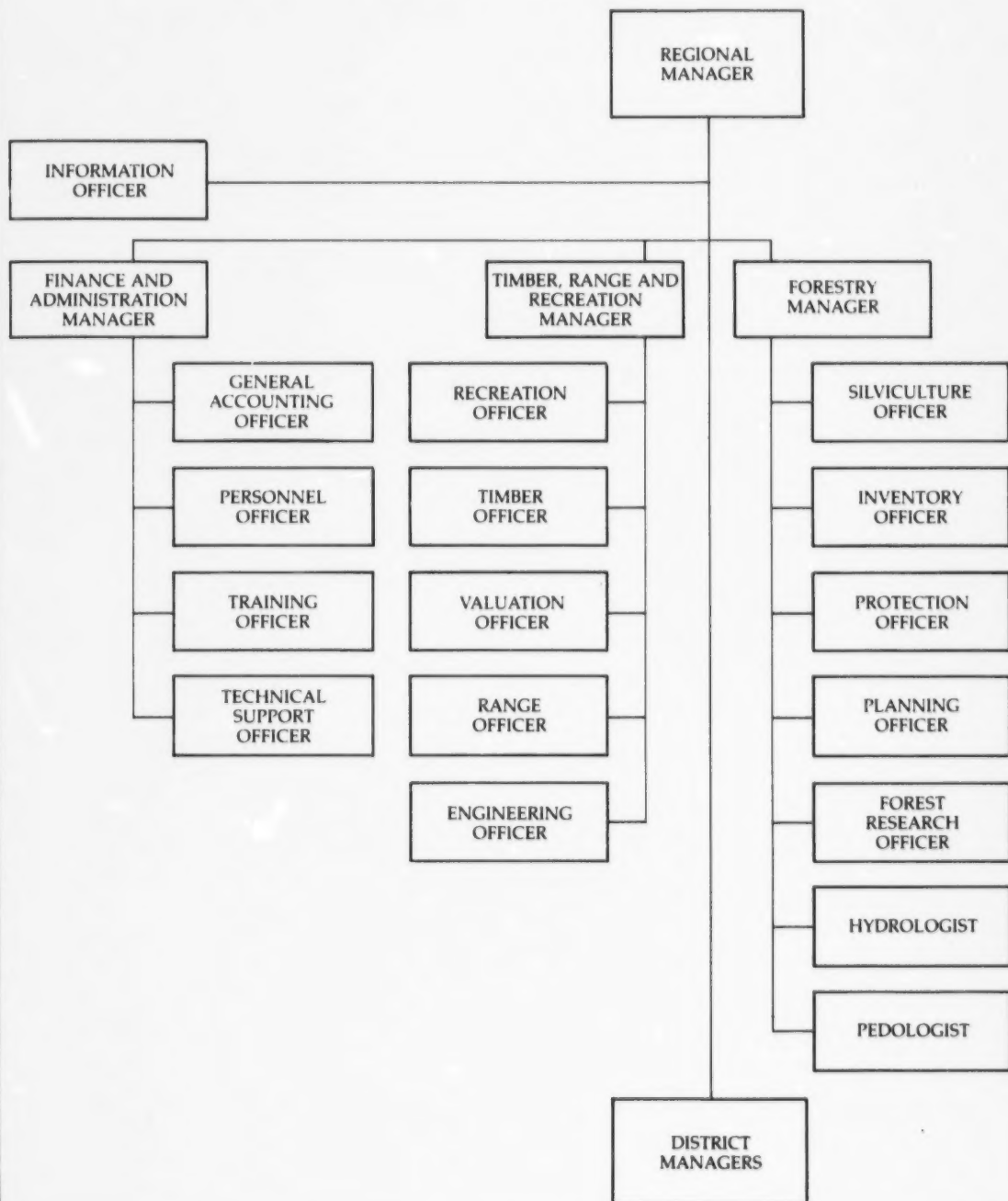
Forest Regions

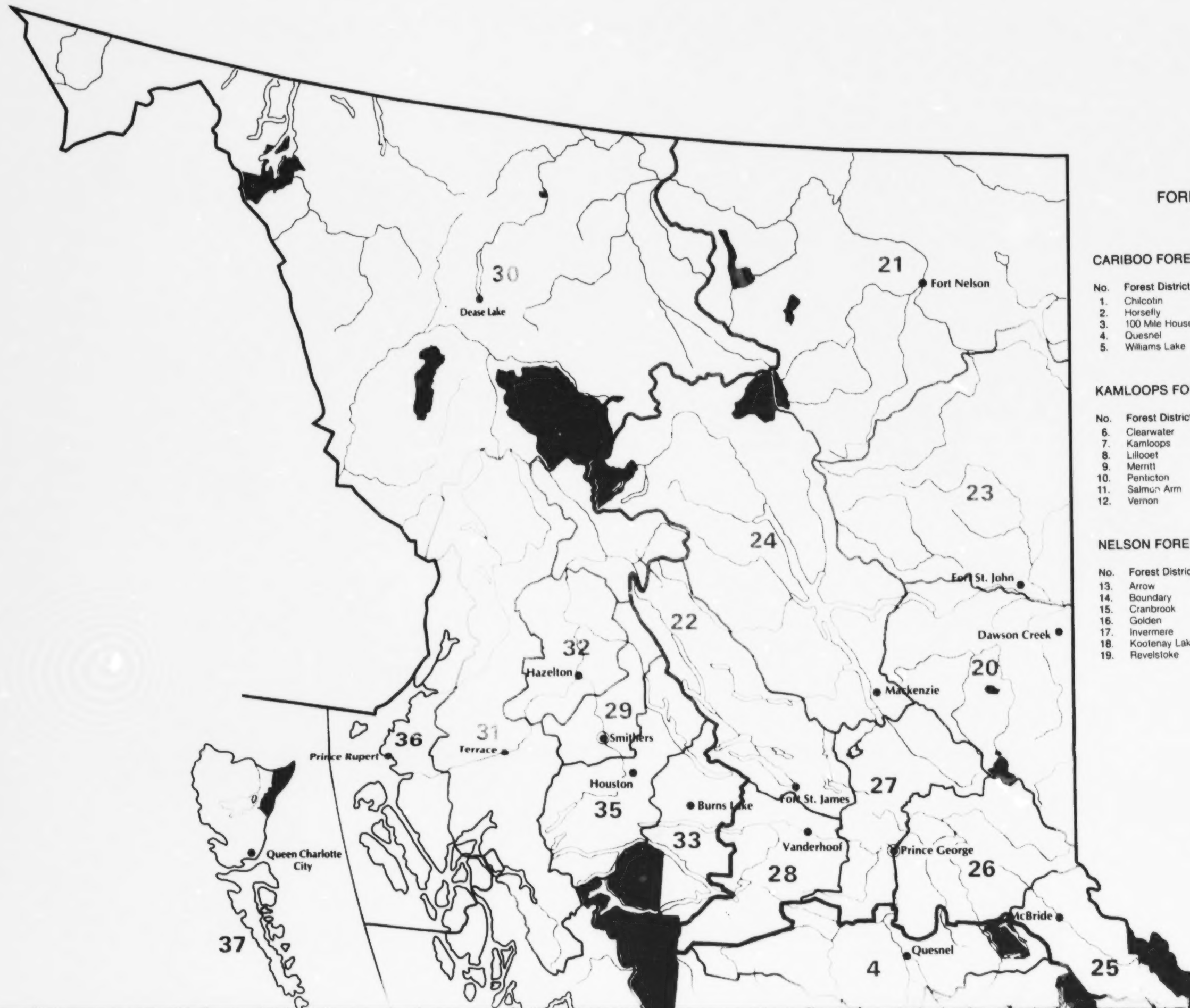
For administrative purposes, the province is divided into six forest regions. Each is administered from its own regional office by a regional manager. Each forest region is further subdivided into forest districts which are under the direction of district managers. The internal organization of each regional office, as shown on page 55, is analogous to that of ministry headquarters. Three regional staff members provide advice and services to the regional manager and to

the various district managers and field personnel. Regional office personnel are responsible for servicing, coordinating and monitoring the activities of all field personnel operating out of district offices throughout each region.

The staff of each regional office develops regional programs and plans and ensures that all policies, programs and procedures originating from ministry headquarters are administered consistently and effectively throughout the region.

Forest Region Organization





FOREST REGIONS AND FOREST DISTRICTS AT MARCH 31, 1982

CARIBOO FOREST REGION

- No. Forest District
- 1. Chilcotin
- 2. Horsefly
- 3. 100 Mile House
- 4. Quesnel
- 5. Williams Lake

KAMLOOPS FOREST REGION

- No. Forest District
- 6. Clearwater
- 7. Kamloops
- 8. Lillooet
- 9. Merritt
- 10. Penticton
- 11. Salmon Arm
- 12. Vernon

NELSON FOREST REGION

- No. Forest District
- 13. Arrow
- 14. Boundary
- 15. Cranbrook
- 16. Golden
- 17. Invermere
- 18. Kootenay Lake
- 19. Revelstoke

PRINCE GEORGE FOREST REGION

- No. Forest District
- 20. Dawson Creek
- 21. Fort Nelson
- 22. Fort St. James
- 23. Fort St. John
- 24. Mackenzie
- 25. McBride
- 26. Prince George East
- 27. Prince George West
- 28. Vanderhoof

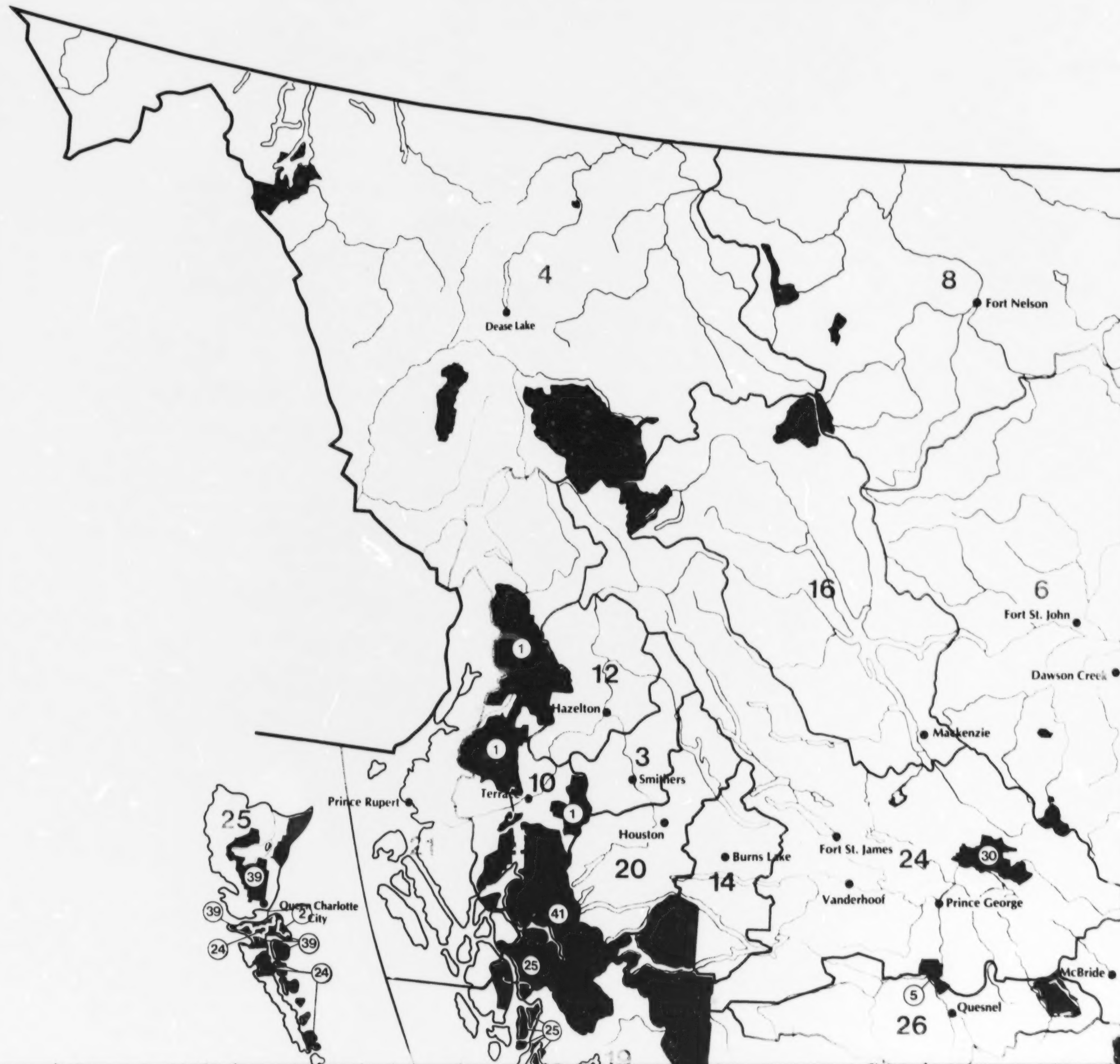
PRINCE RUPERT FOREST REGION

- No. Forest District
- 29. Bulkley
- 30. Cassiar
- 31. Kalum
- 32. Kispiox
- 33. Lakes
- 34. Mid-Coast
- 35. Morice
- 36. North Coast
- 37. Queen Charlotte Islands

VANCOUVER FOREST REGION

- No. Forest District
- 38. Campbell River
- 39. Chilliwack
- 40. Duncan
- 41. Maple Ridge
- 42. Port Alberni
- 43. Port McNeill
- 44. Powell River
- 45. Sechelt
- 46. Squamish

- FOREST REGION BOUNDARY
- FOREST DISTRICT BOUNDARY
- MAJOR PARKS
- FOREST REGION OFFICE



TIMBER SUPPLY AREAS, INCLUDING TREE FARM LICENCES, AT MARCH 31, 1982

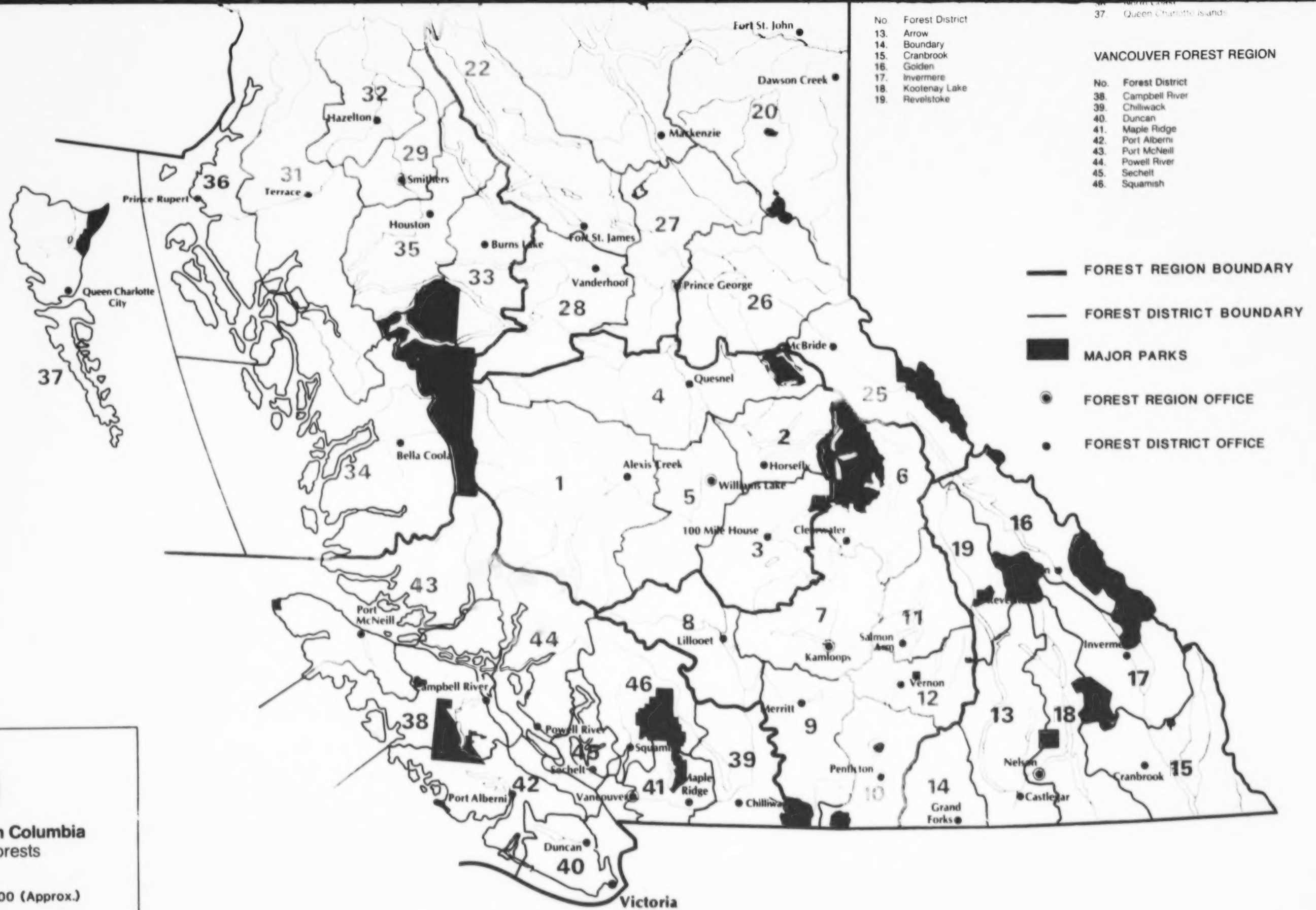
No. Timber Supply Area

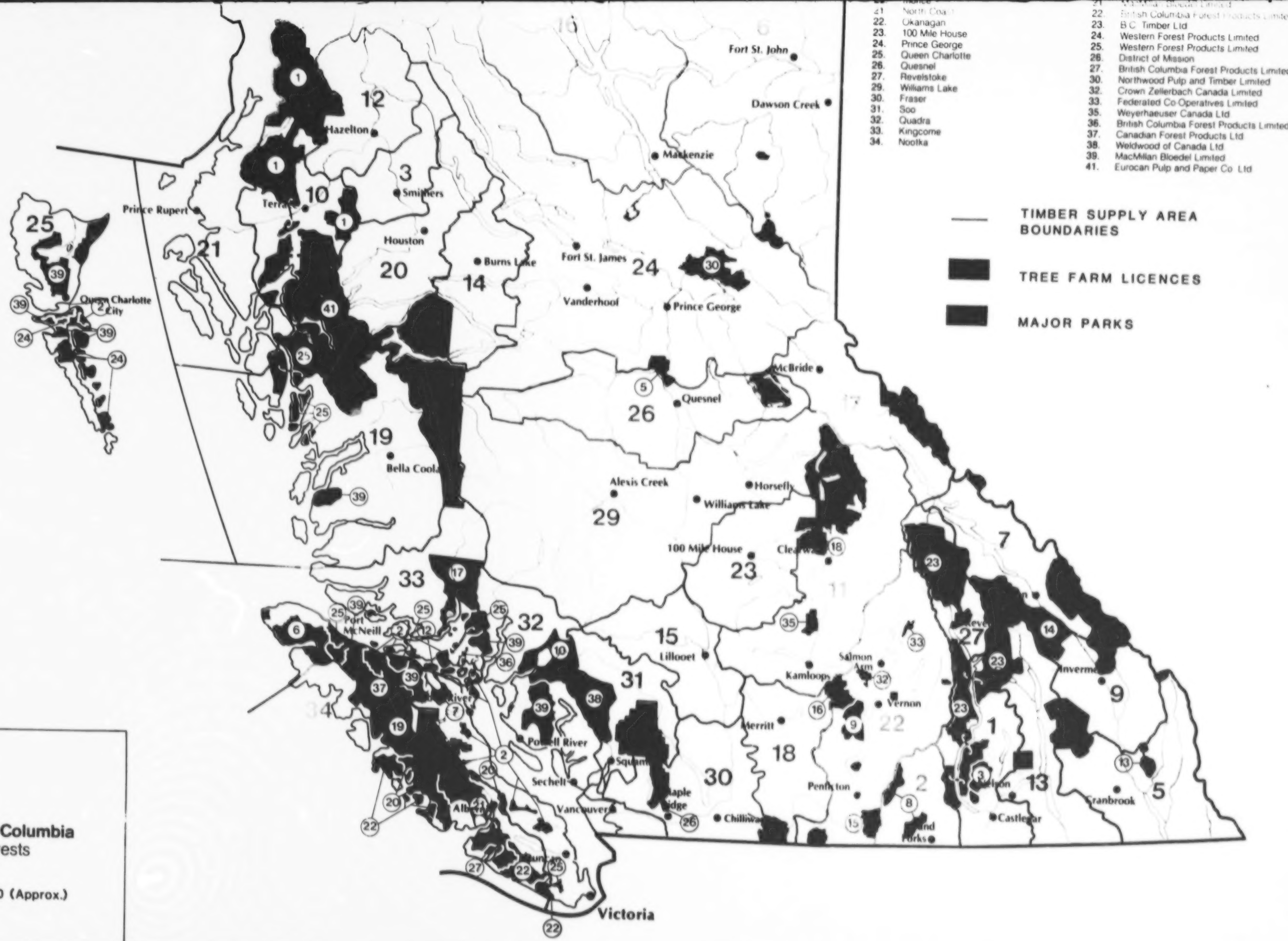
1. Arrow
2. Boundary
3. Bulkley
4. Cassiar
5. Cranbrook
6. Peace
7. Golden
8. Fort Nelson
9. Invermere
10. Kamloops
11. Kispiox
12. Kootenay Lake
13. Lakes
14. Lillooet
15. Mackenzie
16. McBride
17. Merritt
18. Mid-Coast
19. Morice
20. North Coast
21. Okanagan
22. 100 Mile House
23. Prince George
24. Queen Charlotte
25. Quesnel
26. Revelstoke
27. Williams Lake
28. Fraser
29. So0
30. Quadra
31. Kingcome
32. Nootka

No. Tree Farm Licensee

1. B C Timber Ltd.
2. Crown Zellerbach Canada Limited
3. Slocan Forest Products Ltd.
4. Weldwood of Canada Limited
5. Western Forest Products Limited
6. MacMillan Bloedel Limited
7. Pope and Talbot Ltd.
8. Crown Zellerbach Canada Limited
9. Weldwood of Canada Limited
10. Crown Zellerbach (Hardwicke Island) Limited
11. Galloway Lumber Company Ltd.
12. Crestbrook Forest Industries Ltd.
13. Weyerhaeuser Canada Ltd.
14. Crown Zellerbach Canada Limited
15. British Columbia Forest Products Limited
16. Clearwater Timber Products Ltd.
17. Tahsis Company Ltd.
18. MacMillan Bloedel Limited
19. MacMillan Bloedel Limited
20. British Columbia Forest Products Limited
21. B C Timber Ltd.
22. Western Forest Products Limited
23. Western Forest Products Limited
24. District of Mission
25. British Columbia Forest Products Limited
26. Northwood Pulp and Timber Limited
27. Crown Zellerbach Canada Limited
28. Federated Co-Operatives Limited
29. Weyerhaeuser Canada Ltd.
30. British Columbia Forest Products Limited
31. Canadian Forest Products Ltd.
32. Weldwood of Canada Ltd.
33. MacMillan Bloedel Limited
34. Eurocan Pulp and Paper Co. Ltd.

- TIMBER SUPPLY AREA BOUNDARIES
- TREE FARM LICENCES
- MAJOR PARKS





Province of British Columbia
Ministry of Forests

SCALE - 1:3,500,000 (Approx.)